Yashwantrao Chavan
Maharashtra Open University

V102: B.Sc. (Hospitality Studies and Catering Services)

HTS 513: BAKERY AND CONFECTIONERY

V102:B.Sc. in Hospitality Studies and Catering Services
[B.Sc. (HSCS)] 2016 Pattern

BAKERY AND CONFECTIONERY

YASHWANTRAO CHAVAN MAHARASHTRA OPEN UNIVERSITY
Dnyangangotri, Near Gangapur Dam, Nashik 422 222, Maharshtra

YASHWANTRAO CHAVAN MAHARASHTRA OPEN UNIVERSITY

Vice-Chancellor : Prof. (Dr.) E. Vayunandan

School of Continuing Education School Council

Developed by

Dr Rajendra Vadnere
Director, School of Continuing Education
YCMOU, Nashik

Production

Shri. Anand Yadav
Manager, Print Production Centre, YCMOU, Nashik

First Publication : June 2018
Publication No. :
Typesetting :
Printer :
Published by : Dr. Dinesh Bhonde, Registrar, Y. C. M. Open University, Nashik - 422 222.

B-16-17-93 (BTH331)

C O N T E N T S

UNIT 1 : INTRODUCTION TO BAKERY

1.00 BEFORE WE BEGIN

In this course we will be studying the various important concepts of Bakery and Confectionery. This course is divided into four units. The first Unit is an introduction to the concepts in Bakery. We will study the various bakery items, their ingredients, their descriptions, history, etc. In the next Unit, we will try to learn how the various important bakery products are prepared. In the third Unit, we will learn the concept of confectionery and the various confectionery items, their history, importance, cultural significance, etc. In the fourth Unit, we will learn how the various confectionery products are prepared. As you will learn, the concepts of bakery and confectionery are overlapping. We will for our convenience separate the baker's confectionery from the sugar confectionery. The fourth Unit will concentrate on the preparation of sugar confectionery.

The present Unit will concentrate on the concept of Bakery. Bakery is a shop which sells flour-based food baked in oven such as bread, cakes, pastries, etc. We will study the history of bakery, evolution of bakery as institution and various aspects of specialization and commercialization.We will then learn about the various bakery products like bread, cake, pastry, etc. These items are very popular. Bread is a steple food item for centuries across the globe. They come in various forms and styles. We will also learn about the Indian breads like roti, parantha, kulcha, etc. We will learn methods to make them in the next Unit.

Bakery is an important aspect of Hotel kitchen. Breads serve as essential parts of breakfast in most hotels. Hence it will be very important to learn about the bakery. You will be extremely benefited by learning the concepts of Bakery and learning the bakery products.

1.01 UNIT OBJECTIVES

After studying this unit you will be able to

- Describe the concept of bakery.
- Explain the history of bakery indicating the evolution of bakery over the years
- Explain the cocept of specialization in bakery.
- Elaborate what is meant by commercialization of bakery.
- Elaborate the various bakery products.
- Elaborate the social and emotional importance of bread.
- Discribe the history of bread.
- Explain the various types of breads.
- Elaborate the properties of bread.
- Explain the culinary uses of bread.
- Discuss the preparation of bread.
- Explain the concept of leavening and various leavening agent.
- Elaborate the cultural significance of bread.
- Discuss the concept of pizza.
- Describe the evolution of pizza over centuries.
- Explain the preparation of pizza.

- Discuss the variety of pizza.
- Discuss the health issues associated with pizza.
- Explain various dishes similar to pizza.
- Describe the concept of bun.
- Describe the concept of pastry.
- Explain the various types of pastries.
- Describe the Choux pastry.
- Explain the various concepts and terms associated with pastries.
- Describe the historic evolution of pastries.
- Discuss the concept of cake.
- Describe the historic evolution of cake.
- Elaborate the concept of cake mix.
- Discuss the various types of cakes.
- Elaborate the importance of Lancashire Courting Cake.
- Describe the various ways to decorate cakes.
- Explain the concept of biscuit.
- Elaborate the historical development of concepts in biscuit.
- Discuss the development of confectionery biscuit.
- Elaborate the various types of Indian breads.
- Explain how various Indian breads are prepared.

1.02 BAKERY

https://en.wikipedia.org/wiki/Bakery

Fig 1.01: A woman working with a commercial oven at a bakery
https://commons.wikimedia.org/wiki/File:Bakery-2.jpg#/media/File:Bakery-2.jpg

A bakery (a.k.a. baker's shop or bake shop) is an establishment that produces and sells flour-based food baked in an oven such as bread, cookies, cakes, pastries, and pies. Some retail bakeries are also cafés, serving coffee and tea to customers who wish to consume the baked goods on the premises

Baked goods have been around for thousands of years. The art of baking was developed early during the Roman Empire. It was a highly famous art as Roman citizens loved baked goods and demanded for them frequently for important occasions such as feasts and weddings etc. Due to the fame and desire that the art of baking received, around 300 BC, baking was introduced as an occupation and respectable profession for Romans. The bakers began to prepare bread at home in an oven, using mills to grind grain into the flour for their breads. The oncoming demand for baked goods vigorously continued and the first bakers' guild was established in 168 BC in Rome. This drastic appeal for baked goods promoted baking all throughout Europe and expanded into the eastern parts of Asia. Bakers started baking breads and goods at home and selling them out on the streets.

Fig 1.02: Advertisement for a bakery in Germany since 1442
https://commons.wikimedia.org/wiki/File:Braubach_Baker_Plaque_1442_107.JPG#/media/File:Braubach_Baker_Plaque_1442_107.JPG

This trend became common and soon, baked products were getting sold in streets of Rome, Germany, London and many more. This resulted in a system of delivering the goods to households, as the demand for baked breads and goods significantly increased. This provoked the bakers to establish a place where people could purchase baked goods for themselves. Therefore, in Paris, the first open-air bakery of baked goods was developed and since then, bakeries became a common place to purchase delicious goods and get together around the world. By the colonial era, bakeries were commonly viewed as places to gather and socialize.

On July 7, 1928, a bakery in Chillicothe, Missouri introduced pre-cut bread using the automatic bread-slicing machine, invented by Otto Frederick Rohwedder. While the bread initially failed to sell, due to its "sloppy" aesthetic, and the fact it went stale faster, it later became popular. In World War II

bread slicing machines were effectively banned, as the metal in them was required for wartime use. When they were requisitioned, creating 100 tonnes of metal alloy, the decision proved very unpopular with housewives.

World War II directly affected bread industries in the UK. Baking schools closed during this time so when the war did eventually end there was an absence of skilled bakers. This resulted in new methods being developed to satisfy the world's desire for bread. Methods like: adding chemicals to dough, premixes and specialised machinery. Unfortunately, these old methods of baking were almost completely eradicated when these new methods were introduced and became industrialised. The old methods were seen as unnecessary and financially unsound, during this period there were not many traditional bakeries left.

Specialisation

Some bakeries provide services for special occasions (such as weddings, birthday parties, anniversaries, or even business events) or for people who have allergies or sensitivities to certain foods (such as nuts, peanuts, dairy or gluten). Bakeries can provide a wide range of cakes designs such as sheet cakes, layer cakes, tiered cakes, and wedding cakes. Other bakeries may specialize in traditional or hand made types of bread made with locally milled flour, without flour bleaching agents or flour treatment agents, baking what is sometimes referred to as artisan bread.

Commercialization

Grocery stores and supermarkets, in many countries, sell prepackaged or pre-sliced bread, cakes, and other pastries. They can also offer in-store baking and basic cake decoration. Nonetheless, many people still prefer to get their baked goods from a small artisanal bakery, either out of tradition, the availability of a greater variety of baked goods, or due to the higher quality products characteristic of the trade of baking.

CHECK YOUR PROGRESS

- Describe the concept of bakery.
- Explain the history of bakery indicating the evolution of bakery over the years
- Explain the cocept of specialization in bakery.
- Elaborate what is meant by commercialization of bakery.

1.03 BAKERY PRODUCTS

The following is a list of bakery items. We will discuss some bakery products in details in the rest of this Unit.

- Bread
- Bread roll
- Flatbreads
- Bagels
- Doughnuts

- Muffins
- Pizzas
- Buns
- Pastries
- Pies
- Tarts
- Brownies
- Cakes
- croissants
- Cupcakes
- Cookies
- Scones
- Barmbrack
- Soda bread
-

Biscuit (bread)

- Crackers
- Biscuits
- Pretzels
- Biscotti
- Cornbread
- Pandesal
- Pumpkin bread
- Pita
- Sourdough
- Potato bread
- Indian breads

CHECK YOUR PROGRESS

- Elaborate the various bakery products.

1.04 BREAD

https://en.wikipedia.org/wiki/Bread

Bread is a staple food prepared from a dough of flour and water, usually by baking. Throughout recorded history it has been popular around the world and is one of the oldest artificial foods, having been of importance since the dawn of agriculture.

Proportions of types of flour and other ingredients vary widely, as do modes of preparation. As a result, types, shapes, sizes, and textures of breads differ around the world. Bread may be leavened by

Fig 1.03: White bread
https://commons.wikimedia.org/wiki/File:Wei%C3%9Fbrot-1.jpg#/media/File:Wei%C3%9Fbrot-1.jpg

processes such as reliance on naturally occurring sourdough microbes, chemicals, industrially produced yeast, or high-pressure aeration. Some bread is cooked before it can leaven, including for traditional or religious reasons. Non-cereal ingredients such as fruits, nuts and fats may be included. Commercial bread commonly contains additives to improve flavor, texture, color, shelf life, nutrition, and ease of manufacturing.

Bread is served in various forms with any meal of the day. It is eaten as a snack, and used as an ingredient in other culinary preparations, such as sandwiches, and fried items coated in bread crumbs to prevent sticking. It forms the bland main component of bread pudding, as well as of stuffings designed to fill cavities or retain juices that otherwise might drip out.

Bread has a social and emotional significance beyond its importance as nourishment. It plays essential roles in religious rituals and secular culture. Its prominence in daily life is reflected in language, where it appears in proverbs, colloquial expressions ("He stole the bread from my mouth"), in prayer ("Give us this day our daily bread") and in the etymology of words, such as "companion" (from Latin com "with" + panis "bread").

History

Bread is one of the oldest prepared foods. Evidence from 30,000 years ago in Europe revealed starch residue on rocks used for pounding plants. It is possible that during this time, starch extract from the roots of plants, such as cattails and ferns, was spread on a flat rock, placed over a fire and cooked into a primitive form of flatbread. Around 10,000 BC, with the dawn of the Neolithic age and the spread of agriculture, grains became the mainstay of making bread. Yeast spores are ubiquitous, including on the surface of cereal grains, so any dough left to rest leavens naturally.

There were multiple sources of leavening available for early bread. Airborne yeasts could be harnessed by leaving uncooked dough exposed to air for some time before cooking. Pliny the Elder

Fig 1.04: Various leavened breads
https://commons.wikimedia.org/wiki/File:Korb_mit_Br%C3%B6tchen.JPG#/media/File:Korb_mit_Br%C3%B6tchen.JPG

reported that the Gauls and Iberians used the foam skimmed from beer called barm to produce "a lighter kind of bread than other peoples" such as barm cake. Parts of the ancient world that drank wine instead of beer used a paste composed of grape juice and flour that was allowed to begin fermenting, or wheat bran steeped in wine, as a source for yeast. The most common source of leavening was to retain a piece of dough from the previous day to use as a form of sourdough starter, as Pliny also reported.

The Chorleywood bread process was developed in 1961; it uses the intense mechanical working of dough to dramatically reduce the fermentation period and the time taken to produce a loaf. The process, whose high-energy mixing allows for the use of lower protein grain, is now widely used around the world in large factories. As a result, bread can be produced very quickly and at low costs to the manufacturer and the consumer. However, there has been some criticism of the effect on nutritional value.

Types

Bread is the staple food of the Middle East, Central Asia, North Africa, Europe, and in European-derived cultures such as those in the Americas, Australia, and Southern Africa, in contrast to parts of South and East Asia where rice or noodle is the staple. Bread is usually made from a wheat-flour dough that is cultured with yeast, allowed to rise, and finally baked in an oven. The addition of yeast to the bread explains the air pockets commonly found in bread. Owing to its high levels of gluten (which give the dough sponginess and elasticity), common or bread wheat is the most common grain used for the preparation of bread, which makes the largest single contribution to the world's food supply of any food.

Bread is also made from the flour of other wheat species (including spelt, emmer, einkorn and kamut). Non-wheat cereals including rye, barley, maize (corn), oats, sorghum, millet and rice have been used to make bread, but, with the exception of rye, usually in combination with wheat flour as they have less gluten.

Fig 1.05: Brown bread (left) and whole grain bread
https://commons.wikimedia.org/wiki/File:Breadindia.jpg#/media/File:Breadindia.jpg

Fig 1.06: Dark sprouted bread
https://commons.wikimedia.org/wiki/File:Essene_Bread_Spelt_Sproud_cut.JPG#/media/File:Essene_Bread_Spelt_Sproud_cut.JPG

Fig 1.07: Strucia - a type of European sweet bread
https://commons.wikimedia.org/wiki/File:Strucla_sweet_bread02.jpg#/media/File:Strucla_sweet_bread02.jpg

Fig 1.08: Bread pudding
https://commons.wikimedia.org/wiki/File:Rew13c05-745a_Bread_Pudding.JPG#/media/File:Rew13c05-745a_Bread_Pudding.JPG

Gluten-free breads have been created for people affected by gluten-related disorders such as coeliac disease and non-coeliac gluten sensitivity, who may benefit from a gluten-free diet. Gluten-free bread is made with ground flours from a variety of materials such as almonds, rice, sorghum, corn, or legumes such as beans, but since these flours lack gluten they may not hold their shape as they rise and their crumb may be dense with little aeration. Additives such as xanthan gum, guar gum, hydroxypropyl methylcellulose (HPMC), corn starch, or eggs are used to compensate for the lack of gluten.

Properties

Physical-chemical composition

In wheat, phenolic compounds are mainly found in hulls in the form of insoluble bound ferulic acid, where it is relevant to wheat resistance to fungal diseases.

Rye bread contains phenolic acids and ferulic acid dehydrodimers.

Three natural phenolic glucosides, secoisolariciresinol diglucoside, p-coumaric acid glucoside and ferulic acid glucoside, can be found in commercial breads containing flaxseed.

Glutenin and gliadin are functional proteins found in wheat bread that contribute to the structure of bread. Glutenin forms interconnected gluten networks within bread through interchain disulfide bonds. Gliadin binds weakly to the gluten network established by glutenin via intrachain disulfide bonds. Structurally, bread can be defined as an elastic-plastic foam (same as styrofoam). The glutenin protein contributes to its elastic nature, as it is able to regain its initial shape after deformation. The gliadin protein contributes to its plastic nature, because it demonstrates non-reversible structural change after a certain amount of applied force. Because air pockets within this gluten network result from carbon dioxide production during leavening, bread can be defined as a foam, or a gas-in-solid solution.

Culinary uses

Bread can be served at many temperatures; once baked, it can subsequently be toasted. It is most commonly eaten with the hands, either by itself or as a carrier for other foods. Bread can be dipped into liquids such as gravy, olive oil, or soup; it can be topped with various sweet and savory spreads, or used to make sandwiches containing meats, cheeses, vegetables, and condiments.

Bread is used as an ingredient in other culinary preparations, such as the use of breadcrumbs to provide crunchy crusts or thicken sauces, sweet or savoury bread puddings, or as a binding agent in sausages and other ground meat products.

Nutritional significance

Nutritionally, bread is categorized as a source of grains in the food pyramid and is a good source of carbohydrates and nutrients such as magnesium, iron, selenium, B vitamins, and dietary fiber.

Crust

Bread crust is formed from surface dough during the cooking process. It is hardened and browned through the Maillard reaction using the sugars and amino acids and the intense heat at the bread surface. The crust of most breads is harder, and more complexly and intensely flavored, than the rest. Old wives tales suggest that eating the bread crust makes a person's hair curlier. Additionally, the crust is rumored to be healthier than the rest. Some studies have shown that this is true as the crust has more dietary fiber and antioxidants such as pronyl-lysine, which is being researched for its potential colorectal cancer inhibitory properties.

Preparation

Doughs are usually baked, but in some cuisines breads are steamed (e.g., mantou), fried (e.g., puri), or baked on an unoiled frying pan (e.g., tortillas). It may be leavened or unleavened (e.g. matzo). Salt, fat and leavening agents such as yeast and baking soda are common ingredients, though bread may contain other ingredients, such as milk, egg, sugar, spice, fruit such as raisins, vegetables such as onion, nuts such as walnut or seeds such as poppy.

Methods of processing dough into bread include the straight dough process, the sourdough process, the Chorleywood bread process and the sponge and dough process.

Formulation

Professional bread recipes are stated using the baker's percentage notation. The amount of flour is denoted to be 100%, and the other ingredients are expressed as a percentage of that amount by weight. Measurement by weight is more accurate and consistent than measurement by volume, particularly for dry ingredients. The proportion of water to flour is the most important measurement in a bread recipe, as it affects texture and crumb the most. Hard wheat flours absorb about 62% water, while softer wheat flours absorb about 56%. Common table breads made from these doughs result in a finely textured, light bread. Most artisan bread formulas contain anywhere from 60 to 75% water. In yeast breads, the higher water percentages result in more CO_2 bubbles and a coarser bread crumb. One pound (450 g) of flour yields a standard loaf of bread or two French loaves.

Calcium propionate is commonly added by commercial bakeries to retard the growth of molds.

Flour

Fig 1.09: Steps in bread making, here for an unleavened Chilean tortilla
https://commons.wikimedia.org/wiki/File:Tortillas_de_rescoldo.jpg#/media/File:Tortillas_de_rescoldo.jpg

Flour is grain ground to a powdery consistency. Flour provides the primary structure, starch and protein to the final baked bread. The protein content of the flour is the best indicator of the quality of the bread dough and the finished bread. While bread can be made from all-purpose wheat flour, a specialty bread flour, containing more protein (12–14%), is recommended for high-quality bread. If one uses a flour with a lower protein content (9–11%) to produce bread, a shorter mixing time is required to develop gluten strength properly. An extended mixing time leads to oxidization of the dough, which gives the finished product a whiter crumb, instead of the cream color preferred by most artisan bakers.

Wheat flour, in addition to its starch, contains three water-soluble protein groups (albumin, globulin, and proteoses) and two water-insoluble protein groups (glutenin and gliadin). When flour is mixed with water, the water-soluble proteins dissolve, leaving the glutenin and gliadin to form the structure of the resulting bread. When relatively dry dough is worked by kneading, or wet dough is allowed to rise for a long time (see no-knead bread), the glutenin forms strands of long, thin, chainlike molecules, while the shorter gliadin forms bridges between the strands of glutenin. The resulting networks of strands produced by these two proteins are known as gluten. Gluten development improves if the dough is allowed to autolyse.

Liquids

Water, or some other liquid, is used to form the flour into a paste or dough. The weight of liquid required varies between recipes, but a ratio of 3 parts liquid to 5 parts flour is common for yeast breads. Recipes that use steam as the primary leavening method may have a liquid content in excess of 1 part liquid to 1 part flour. Instead of water, recipes may use liquids such as milk or other dairy

products (including buttermilk or yoghurt), fruit juice, or eggs. These contribute additional sweeteners, fats, or leavening components, as well as water.

Fats or shortenings

Fats, such as butter, vegetable oils, lard, or that contained in eggs, affect the development of gluten in breads by coating and lubricating the individual strands of protein. They also help to hold the structure together. If too much fat is included in a bread dough, the lubrication effect causes the protein structures to divide. A fat content of approximately 3% by weight is the concentration that produces the greatest leavening action. In addition to their effects on leavening, fats also serve to tenderize breads and preserve freshness.

Fig 1.10: (a) Before first rising (b) After first rising (c) After proofing, ready to bake
Wikipedia

Bread improvers

Bread improvers and dough conditioners are often used in producing commercial breads to reduce the time needed for rising and to improve texture and volume. The substances used may be oxidising agents to strengthen the dough or reducing agents to develop gluten and reduce mixing time, emulsifiers to strengthen the dough or to provide other properties such as making slicing easier, or enzymes to increase gas production.

Salt is often added to enhance flavor and restrict yeast activity. It also affects the crumb and the overall texture by stabilizing and strengthening the gluten. Some artisan bakers forego early addition of salt to the dough, whether wholemeal or refined, and wait until after a 20-minute rest to allow the dough to autolyse.

Leavening

Leavening is the process of adding gas to a dough before or during baking to produce a lighter, more easily chewed bread. Most bread eaten in the West is leavened.

Chemicals

A simple technique for leavening bread is the use of gas-producing chemicals. There are two common methods. The first is to use baking powder or a self-raising flour that includes baking powder. The second is to include an acidic ingredient such as buttermilk and add baking soda; the reaction of the acid with the soda produces gas. Chemically leavened breads are called quick breads and soda breads. This method is commonly used to make muffins, pancakes, American-style biscuits, and quick breads such as banana bread.

Yeast

Many breads are leavened by yeast. The yeast most commonly used for leavening bread is Saccharomyces cerevisiae, the same species used for brewing alcoholic beverages. This yeast ferments some of the carbohydrates in the flour, including any sugar, producing carbon dioxide. Commercial bakers often leaven their dough with commercially produced baker's yeast. Baker's yeast has the advantage of producing uniform, quick, and reliable results, because it is obtained from a pure culture. Many artisan bakers produce their own yeast with a growth culture. If kept in the right conditions, it provides leavening for many years.

The baker's yeast and sourdough methods follow the same pattern. Water is mixed with flour, salt and the leavening agent. Other additions (spices, herbs, fats, seeds, fruit, etc.) are not needed to bake

Fig 1.11: Compressed fresh yeast
https://commons.wikimedia.org/wiki/File:Compressed_fresh_yeast_-_1.jpg#/media/File:Compressed_fresh_yeast_-_1.jpg

bread, but are often used. The mixed dough is then allowed to rise one or more times (a longer rising time results in more flavor, so bakers often "punch down" the dough and let it rise again), then loaves are formed, and (after an optional final rising time) the bread is baked in an oven.

Many breads are made from a "straight dough", which means that all of the ingredients are combined in one step, and the dough is baked after the rising time; others are made from a "pre-ferment" in which the leavening agent is combined with some of the flour and water a day or so ahead of baking and allowed to ferment overnight. On the day of baking, the rest of the ingredients are added, and the process continues as with straight dough. This produces a more flavorful bread with better texture. Many bakers see the starter method as a compromise between the reliable results of baker's yeast and the flavor and complexity of a longer fermentation. It also allows the baker to use only a minimal amount of baker's yeast, which was scarce and expensive when it first became available. Most yeasted pre-ferments fall into one of three categories: "poolish" or "pouliche", a loose-textured mixture composed of roughly equal amounts of flour and water (by weight); "biga", a stiff mixture with a

higher proportion of flour; and "pâte fermentée", which is simply a portion of dough reserved from a previous batch.

Sourdough

Fig 1.12: Sourdough loaves
https://commons.wikimedia.org/wiki/File:Sour_dough_loaves03.jpg#/media/File:Sour_dough_loaves03.jpg

Sourdough is a type of bread produced by a long fermentation of dough using naturally occurring yeasts and lactobacilli. It usually has a mildly sour taste because of the lactic acid produced during anaerobic fermentation by the lactobacilli.

Sourdough breads are made with a sourdough starter. The starter cultivates yeast and lactobacilli in a mixture of flour and water, making use of the microorganisms already present on flour; it does not need any added yeast. A starter may be maintained indefinitely by regular additions of flour and water. Some bakers have starters many generations old, which are said to have a special taste or texture. At one time, all yeast-leavened breads were sourdoughs. Recently there has been a revival of sourdough bread in artisan bakeries.

Traditionally, peasant families throughout Europe baked on a fixed schedule, perhaps once a week. The starter was saved from the previous week's dough. The starter was mixed with the new ingredients, the dough was left to rise, and then a piece of it was saved (to be the starter for next week's bread).

Steam

The rapid expansion of steam produced during baking leavens the bread, which is as simple as it is unpredictable. Steam-leavening is unpredictable since the steam is not produced until the bread is baked. Steam leavening happens regardless of the raising agents (baking soda, yeast, baking powder, sour dough, beaten egg white) included in the mix. The leavening agent either contains air bubbles or

generates carbon dioxide. The heat vaporises the water from the inner surface of the bubbles within the dough. The steam expands and makes the bread rise. This is the main factor in the rising of bread once it has been put in the oven. CO2 generation, on its own, is too small to account for the rise. Heat kills bacteria or yeast at an early stage, so the CO2 generation is stopped.

Bacteria

Salt-rising bread employs a form of bacterial leavening that does not require yeast. Although the leavening action is inconsistent, and requires close attention to the incubating conditions, this bread is making a comeback for its cheese-like flavor and fine texture.

Aeration

Aerated bread was leavened by carbon dioxide being forced into dough under pressure. From the mid 19th to mid 20th centuries bread made this way was somewhat popular in the United Kingdom, made by the Aerated Bread Company and sold in its high-street tearooms. The company was founded in 1862, and ceased independent operations in 1955.

The Pressure-Vacuum mixer was later developed by the Flour Milling and Baking Research Association for the Chorleywood bread process. It manipulates the gas bubble size and optionally the composition of gases in the dough via the gas applied to the headspace. The organic baker Andrew Whitely, writing in The Independent, called the process "the covert corruption of our daily food".

Cultural significance

Fig 1.13: A Ukrainian woman in national dress welcoming with bread and salt
https://commons.wikimedia.org/wiki/File:Rapid_Trident_2014_03.jpg#/media/File:Rapid_Trident_2014_03.jpg

Bread has a significance beyond mere nutrition in many cultures because of its history and contemporary importance. Bread is also significant in Christianity as one of the elements (alongside wine) of the Eucharist, and in other religions including Paganism.

In many cultures, bread is a metaphor for basic necessities and living conditions in general. For example, a "bread-winner" is a household's main economic contributor and has little to do with actual bread-provision. This is also seen in the phrase "putting bread on the table". The Roman poet Juvenal satirized superficial politicians and the public as caring only for "panem et circenses" (bread and circuses). In Russia in 1917, the Bolsheviks promised "peace, land, and bread." The term "breadbasket" denotes an agriculturally productive region. In Slavic cultures bread and salt is offered as a welcome to guests. In India, life's basic necessities are often referred to as "roti, kapra aur makan" (bread, cloth, and house).

Words for bread, including "dough" and "bread" itself, are used in English-speaking countries as synonyms for money. A remarkable or revolutionary innovation may be called the best thing since "sliced bread". The expression "to break bread with someone" means "to share a meal with someone". The English word "lord" comes from the Anglo-Saxon hlāfweard, meaning "bread keeper."

Bread is sometimes referred to as "the staff of life", although this term can refer to other staple foods in different cultures: the Oxford English Dictionary defines it as "bread (or similar staple food)". This is sometimes thought to be a biblical reference, but the nearest wording is in Leviticus 26 "when I have broken the staff of your bread". The term has been adopted in the names of bakery firms.

CHECK YOUR PROGRESS

- Elaborate the social and emotional importance of bread.
- Discribe the history of bread.
- Explain the various types of breads.
- Elaborate the properties of bread.
- Explain the culinary uses of bread.
- Discuss the preparation of bread.
- Explain the concept of leavening and various leavening agent.
- Elaborate the cultural significance of bread.

1.05 PIZZA

https://en.wikipedia.org/wiki/Pizza

Pizza is a traditional Italian dish consisting of a yeasted flatbread typically topped with tomato sauce and cheese and baked in an oven. It can also be topped with additional vegetables, meats, and condiments, and can be made without cheese.

The term pizza was first recorded in the 10th century, in a Latin manuscript from the Southern Italian town of Gaeta in Lazio, on the border with Campania. Modern pizza was invented in Naples, and the dish and its variants have since become popular and common in many areas of the world. In 2009, upon Italy's request, Neapolitan pizza was registered with the European Union as a Traditional Speciality Guaranteed dish. The Associazione Verace Pizza Napoletana (True Neapolitan Pizza Association), a non-profit organization founded in 1984 with headquarters in Naples, aims to "promote and protect... the true Neapolitan pizza".

Fig 1.14: Picture of an authentic Neapolitan Pizza Margherita taken by Valerio Capello on September 6th 2005 in a pizzeria ("I Decumani") located on the Via dei Tribunali in Naples.
https://commons.wikimedia.org/wiki/File:Eq_it-na_pizza-margherita_sep2005_sml.jpg#/media/File:Eq_it-na_pizza-margherita_sep2005_sml.jpg

Pizza is one of the most popular foods in the world and a common fast food item in Europe and North America. Many independent or chain restaurants, cafes, and fast food outlets offer pizza. Restaurants or chains specializing in pizza are pizzerias. Pizza delivery is common in some parts of the world.

Pizza is sold fresh or frozen, either whole or in portions. Various types of ovens are used to cook them and many varieties exist. Several similar dishes are prepared from ingredients commonly used in pizza preparation, such as calzone and stromboli. In the United States, pizza is usually eaten out of hand after dividing into slices from a large pizza or small pizzetta as a whole. In Italy, pizza is eaten with a fork and knife in restaurants, but is also sold to take away and eaten out of hand. Frozen pizza became popular in the late 20th century.

History

Foods similar to pizza have been made since the neolithic age. Records of people adding other ingredients to bread to make it more flavorful can be found throughout ancient history. The ancient Greeks supplemented their bread with oils, herbs, and cheese, and in the 6th century BC, the soldiers in Persian King Darius I's armies baked flatbreads with cheese and dates on top of their battle shields. An early reference to a pizza-like food occurs in the Aeneid, when Celaeno, queen of the Harpies, foretells that the Trojans would not find peace until they are forced by hunger to eat their tables (Book III). In Book VII, Aeneas and his men are served a meal that includes round cakes (like pita bread) topped with cooked vegetables. When they eat the bread, they realize that these are the "tables" prophesied by Celaeno.

Fig 1.15: Pizza Hut chain restaurant
https://commons.wikimedia.org/wiki/File:Pizza_Hut_Athens_OH_USA.JPG#/media/File:Pizza_Hut_Athens_OH_USA.JPG

Fig 1.16: Kartoffelpizza med rosmarinpesto
https://commons.wikimedia.org/wiki/File:Kartoffel_pizza_(with_border).jpg#/media/File:Kartoffel_pizza_(with_border).jpg

Modern pizza evolved from similar flatbread dishes in Naples in the 18th or early 19th century. Prior to that time, flatbread was often topped with ingredients such as garlic, salt, lard, cheese, and basil. It is uncertain when tomatoes were first added and there are many conflicting claims. Until about 1830, pizza was sold from open-air stands and out of pizza bakeries, and pizzerias keep this old tradition alive today.

A popular contemporary legend holds that the archetypal pizza, pizza Margherita, was invented in 1889, when the Royal Palace of Capodimonte commissioned the Neapolitan pizzaiolo (pizza maker) Raffaele Esposito to create a pizza in honor of the visiting Queen Margherita. Of the three different pizzas he created, the Queen strongly preferred a pizza swathed in the colors of the Italian flag: red (tomato), green (basil), and white (mozzarella). Supposedly, this kind of pizza was then named after

Fig 1.17: Pizza with cheese and toppings, cut into slices
https://commons.wikimedia.org/wiki/File:Pizza-3007395.jpg#/media/File:Pizza-3007395.jpg

Fig 1.18: A wrapped, mass-produced frozen pizza to be cooked at home
https://commons.wikimedia.org/wiki/File:Frozen_pizza.jpg#/media/File:Frozen_pizza.jpg

the Queen, although recent research casts doubt on this legend. An official letter of recognition from the Queen's "head of service" remains on display in Esposito's shop, now called the Pizzeria Brandi.

Pizza was brought to the United States with Italian immigrants in the late nineteenth century, and first appeared in areas where Italian immigrants concentrated. The country's first pizzeria, Lombardi's, opened in 1905. Following World War II, veterans returning from the Italian Campaign after being introduced to Italy's native cuisine proved a ready market for pizza in particular. Since then pizza

consumption has exploded in the U.S. Pizza chains such as Domino's, Pizza Hut, and Papa John's, pizzas from take and bake pizzerias, and chilled or frozen pizzas from supermarkets make pizza readily available nationwide. It is so ubiquitous, thirteen percent of the U.S. population consumes pizza on any given day.

Preparation

Pizza is prepared fresh, frozen, and as portion-size slices or pieces. Methods have been developed to overcome challenges such as preventing the sauce from combining with the dough and producing a crust that can be frozen and reheated without becoming rigid. There are frozen pizzas with raw ingredients and self-rising crusts.

Another form of uncooked pizza is available from take and bake pizzerias. This pizza is assembled in the store, then sold to customers to bake in their own ovens. Some grocery stores sell fresh dough along with sauce and basic ingredients, to complete at home before baking in an oven.

Cooking

In restaurants, pizza can be baked in an oven with stone bricks above the heat source, an electric deck oven, a conveyor belt oven or, in the case of more expensive restaurants, a wood or coal-fired brick oven. On deck ovens, pizza can be slid into the oven on a long paddle, called a peel, and baked directly on the hot bricks or baked on a screen (a round metal grate, typically aluminum). Prior to use, a peel may be sprinkled with cornmeal to allow pizza to easily slide onto and off of it. When made at home, it can be baked on a pizza stone in a regular oven to reproduce the effect of a brick oven. Aficionado home-chefs sometimes use a specialty wood-fired pizza oven, usually installed outdoors. Dome-shaped pizza ovens have been used for centuries, which is one way to achieve true heat distribution in a wood-fired pizza oven. Another option is grilled pizza, in which the crust is baked directly on a barbecue grill. Greek pizza, like Chicago-style pizza, is baked in a pan rather than directly on the bricks of the pizza oven.

When it comes to preparation, the dough and ingredients can be combined on any kind of table. With mass production of pizza, the process can be completely automated. Most restaurants still use standard and purpose-built pizza preparation tables. Pizzerias nowadays can even opt for hi tech pizza preparation tables that combine mass production elements with traditional techniques.

Crust

The bottom of the pizza, called the 'crust', may vary widely according to style; thin as in a typical hand-tossed Neapolitan pizza, or thick as in a deep-dish Chicago-style. It is traditionally plain, but may also be seasoned with garlic or herbs, or stuffed with cheese. The outer edge of the pizza is sometimes referred to as the cornicione. Pizza dough often contains sugar, both to help its yeast rise and enhance browning of the crust.

Dipping sauce specifically for pizza was invented by American pizza chain Papa John's Pizza in 1984, and has since become popular when eating pizza, especially the crust.

Cheese

Mozzarella is commonly used on pizza, with the highest quality buffalo mozzarella produced in the surroundings of Naples. Today, other cheeses have been used as pizza ingredients (particularly Italian cheeses), including provolone, pecorino romano, ricotta, and scamorza. Less expensive processed

Fig 1.19: Pizza dough being kneaded. After this, it is typically left undisturbed and allowed time to proof.

https://commons.wikimedia.org/wiki/File:Pizza_1_bg.jpg#/media/File:Pizza_1_bg.jpg

Fig 1.20: Traditional pizza dough being tossed

https://commons.wikimedia.org/wiki/File:Jupiter_-_Flickr_-_Joe_Parks.jpg#/media/File:Jupiter_-_Flickr_-_Joe_Parks.jpg

Fig 1.21: Various toppings being placed on pan pizzas

https://commons.wikimedia.org/wiki/File:US_Navy_070406-N-2959L-756_Members_of_USS_Ronald_Reagan_(CVN_76)_First_Class_Association_prepare_and_put_toppings_on_pizzas_in_the_galley_as_part_of_a_special_dinner_prepared_for_the_crew.jpg#/media/File:US_Navy_070406-N-2959L-756_Members_of_USS_Ronald_Reagan_(CVN_76)_First_Class_Association_prepare_and_put_toppings_on_pizzas_in_the_galley_as_part_of_a_special_dinner_prepared_for_the_crew.jpg

Fig 1.22: An uncooked Neapolitan pi
https://commons.wikimedia.org/wiki/File:Neapolitan_pizza.jpg#/media/File:Neapolitan_pizza.jpgzza on a metal peel, ready for the oven

Fig 1.23: Pizzas bake in a traditional wood-fired brick oven
https://commons.wikimedia.org/wiki/File:Pizza_im_Pizzaofen_von_Maurizio.jpg#/media/File:Pizza_im_Pizzaofen_von_Maurizio.jpg

Fig 1.24: A pizza baked in a wood-fired oven, being removed with a wooden peel
https://commons.wikimedia.org/wiki/File:Pizza_baking_in_Wood-fired_oven.jpg#/media/File:Pizza_baking_in_Wood-fired_oven.jpg

cheeses or cheese analogues have been developed for mass-market pizzas to produce desirable qualities like browning, melting, stretchiness, consistent fat and moisture content, and stable shelf life. This quest to create the ideal and economical pizza cheese has involved many studies and experiments analyzing the impact of vegetable oil, manufacturing and culture processes, denatured whey proteins and other changes in manufacture. In 1997 it was estimated that annual production of pizza cheese was 1 million tonnes (1,100,000 short tons) in the U.S. and 100,000 tonnes (110,000 short tons) in Europe.

Varieties

Italy

Authentic Neapolitan pizza (pizza napoletana) is typically made with San Marzano tomatoes, grown on the volcanic plains south of Mount Vesuvius, and mozzarella di bufala Campana, made with milk from water buffalo raised in the marshlands of Campania and Lazio. This mozzarella is protected with its own European protected designation of origin. Other traditional pizzas include pizza alla marinara, which is topped with marinara sauce and is allegedly the most ancient tomato-topped pizza, pizza capricciosa, which is prepared with mozzarella cheese, baked ham, mushroom, artichoke and tomato, and pizza pugliese, prepared with tomato, mozzarella and onions.

A popular variant of pizza in Italy is Sicilian pizza (locally called sfincione or sfinciuni), a thick-crust or deep-dish pizza originating during the 17th century in Sicily: it is essentially a focaccia that is typically topped with tomato sauce and other ingredients. Until the 1860s, sfincione was the type of pizza usually consumed in Sicily, especially in the Western portion of the island. Other variations of pizzas are also found in other regions of Italy, for example pizza al padellino or pizza al tegamino, a small-sized, thick-crust and deep-dish pizza typically served in Turin, Piedmont.

United States

Common toppings for pizza in the United States include ground beef, mushrooms, onions, pepperoni, pineapple, garlic, olives, peppers, carrots, tomatoes, spinach, anchovies, chicken, bacon, ham and sausage. Distinct regional types developed in the twentieth century, including California, Chicago, Greek, New Haven, Detroit, St. Louis, and New York styles. The first pizzeria in the U.S. was opened in New York's Little Italy in 1905 and since then regions throughout the U.S. offer variations, including deep-dish, stuffed, pockets, turnovers, rolled and pizza-on-a-stick, each with seemingly limitless combinations of sauce and toppings.

Another variation is grilled pizza, created by taking a fairly thin, round (more typically, irregularly shaped) sheet of yeasted pizza dough, placing it directly over the fire of a grill and then turning it over once the bottom has baked and placing a thin layer of toppings on the baked side. Toppings may be sliced thin to ensure that they heat through, and chunkier toppings such as sausage or peppers may be precooked before being placed on the pizza. Garlic, herbs, or other ingredients are sometimes added to the pizza or the crust to maximize the flavor of the dish.

Grilled pizza was offered in the United States at the Al Forno restaurant in Providence, Rhode Island by owners Johanne Killeen and George Germon in 1980. Although it was inspired by a misunderstanding that confused a wood-fired brick oven with a grill, grilled pizza did exist prior to 1980, both in Italy, and in Argentina where it is known as pizza a la parrilla. It has become a popular cookout dish, and there are even some pizza restaurants that specialize in the style. The traditional style of grilled pizza employed at Al Forno restaurant uses a dough coated with olive oil, strained

Fig 1.25: A cooked pizza served at a New York pizzeria
https://commons.wikimedia.org/wiki/File:New_York-Style_Pizza.png#/media/File:New_York-Style_Pizza.png

Fig 1.26: A pizza just removed from an oven, with a close-up view of the cornicione (the outer edge)
https://commons.wikimedia.org/wiki/File:Hot_pizza.jpg#/media/File:Hot_pizza.jpg

Fig 1.27: A pizza quattro formaggi (Italian: [ˈkwattro forˈmaddʒ], "four cheeses") in London

https://commons.wikimedia.org/wiki/File:Pizza_quattro_formaggi_at_restaurant,_Chalk_Farm_Road,_London.jpg#/media/File:Pizza_quattro_formaggi_at_restaurant,_Chalk_Farm_Road,_London.jpg

Fig 1.28: Spinach pizza, Turin
https://commons.wikimedia.org/wiki/File:Spinach_pizza.jpg#/media/File:Spinach_pizza.jpg

Fig 1.29: Slices of New York-style pizza
https://commons.wikimedia.org/wiki/File:NewYorkSlices.jpg#/media/File:NewYorkSlices.jpg

Fig 1.30: Pizza banquet in the White House
https://commons.wikimedia.org/wiki/File:Pizza_tasting_in_the_Roosevelt_Room.jpg#/media/File:Pizza_tasting_in_the_Roosevelt_Room.jpg

tomato sauce, thin slices of fresh mozzarella, and a garnish made from shaved scallions, and is served uncut. The final product can be likened to flatbread with pizza toppings. Another Providence establishment, Bob & Timmy's Grilled Pizza, was featured in a Providence-themed episode of the Travel Channel's Man v. Food Nation in 2011.

Records

The world's largest pizza was prepared in Rome in December 2012, and measured 1,261 square metres (13,570 sq ft). The pizza was named "Ottavia" in homage to the first Roman emperor Octavian Augustus, and was made with a gluten-free base. The world's longest pizza was made in Naples in 2016. It was baked using a series of wheeled ovens which moved along its length, and measured 1.85 kilometres (1.15 mi).

The world's most expensive pizza listed by Guinness World Records is a commercially available thin-crust pizza at Maze restaurant in London, United Kingdom, which costs GB£100. The pizza is wood fire-baked, and is topped with onion puree, white truffle paste, fontina cheese, baby mozzarella, pancetta, cep mushrooms, freshly picked wild mizuna lettuce, and fresh shavings of a rare Italian white truffle.

There are several instances of more expensive pizzas, such as the GB£4,200 "Pizza Royale 007" at Haggis restaurant in Glasgow, Scotland, which has caviar, lobster and is topped with 24-carat gold dust, and the US$1,000 caviar pizza made by Nino's Bellissima pizzeria in New York City, New York. However, these are not officially recognized by Guinness World Records. Additionally, a pizza was made by the restaurateur Domenico Crolla that included toppings such as sunblush-tomato sauce, Scottish smoked salmon, medallions of venison, edible gold, lobster marinated in cognac, and champagne-soaked caviar. The pizza was auctioned for charity in 2007, raising GB£2,150.

In 2017, the world pizza market was $128 billion and in the US it was $44 billion spread over 76,000 pizzerias. Overall, 13% of the U.S. population aged 2 years and over, consumed pizza on any given day.

Health issues

Some mass-produced pizzas by fast food chains have been criticized as having an unhealthy balance of ingredients. Pizza can be high in salt, fat and calories (food energy). The USDA reports an average sodium content of 5,101 mg per 14 in (36 cm) pizza in fast food chains. There are concerns about negative health effects. Food chains have come under criticism at various times for the high salt content of some of their meals.

Frequent pizza eaters in Italy have been found to have a relatively low incidence of cardiovascular disease and digestive tract cancers relative to infrequent pizza eaters, although the nature of the correlation between pizza and such perceived benefits is unclear. Pizza consumption in Italy might only indicate adherence to traditional Mediterranean dietary patterns, which have been shown to have various health benefits.

Some attribute the apparent health benefits of pizza to the lycopene content in pizza sauce, which research indicates likely plays a role in protecting against cardiovascular disease and various cancers.

National Pizza Month

National Pizza Month is an annual observance that occurs for the month of October in the United States and some areas of Canada. This observance began in October 1984, and was created by Gerry

Fig 1.31: A halved calzone
https://commons.wikimedia.org/wiki/File:Calzone04.jpg#/media/File:Calzone04.jpg

Fig 1.32: A tarte flambée
https://commons.wikimedia.org/wiki/File:Tarte_flamb%C3%A9e_alsacienne_514471722.jpg#/media/File:Tarte_flamb%C3%A9e_alsacienne_514471722.jpg

Durnell, the publisher of Pizza Today magazine. During this time, some people observe National Pizza Month by consuming various types of pizzas or pizza slices, or going to various pizzerias.

Similar dishes

- Calzone and stromboli are similar dishes (a calzone is traditionally half-moon-shaped, while a stromboli is tube-shaped) that are often made of pizza dough rolled or folded around a filling.
- Panzerotti are similar to calzones, however, fried rather than baked.
- "Farinata" or "cecina". A Ligurian (farinata) and Tuscan (cecina) regional dish made from chickpea flour, water, salt and olive oil. Also called socca in the Provence region of France. Often baked in a brick oven, and typically weighed and sold by the slice.
- The Alsatian Flammekueche (Standard German: Flammkuchen, French: Tarte flambée) is a thin disc of dough covered in crème fraîche, onions, and bacon.
- Garlic fingers is an Atlantic Canadian dish, similar to a pizza in shape and size, and made with similar dough. It is garnished with melted butter, garlic, cheese, and sometimes bacon.
- The Anatolian Lahmajoun (Arabic: laḥm bi'ajīn; Armenian: lahmajoun; also Armenian pizza or Turkish pizza) is a meat-topped dough round. The bread is very thin; the layer of meat often includes chopped vegetables.
- The Levantine Manakish (Arabic: ma'ujnāt) and Sfiha (Arabic: laḥm bi'ajīn; also Arab pizza) are dishes similar to pizza.
- The Macedonian Pastrmajlija is a bread pie made from dough and meat. It is usually oval-shaped with chopped meat on top of it.
- The Provençal Pissaladière is similar to an Italian pizza, with a slightly thicker crust and a topping of cooked onions, anchovies, and olives.
- Pizza bagel is a bagel with toppings similar to that of traditional pizzas
- Pizza bread is a type of sandwich that is often served open-faced which consists of bread, pizza or tomato sauce, cheese and various toppings. Homemade versions may be prepared.
- Pizza sticks may be prepared with pizza dough and pizza ingredients, in which the dough is shaped into stick forms, sauce and toppings are added, and it is then baked. Bread dough may also be used in their preparation, and some versions are fried.
- Pizza Rolls are a frozen snack variation of traditional pizza that can include various toppings. Homemade versions may be prepared as well.
- Okonomiyaki, a Japanese dish cooked on a hotplate, is often referred to as "Japanese pizza".
- "Zanzibar pizza" is a street food served in Stone Town, Zanzibar, Tanzania. It uses a dough much thinner than pizza dough, almost like phyllo dough, filled with minced beef, onions, and an egg, similar to Moroccan bestila.
- Panizza is a half of bread (often baguette), topped with the usual pizza ingredients, baked in an oven.

CHECK YOUR PROGRESS

- Discuss the concept of pizza.
- Describe the evolution of pizza over centuries.
- Explain the preparation of pizza.
- Discuss the variety of pizza.

- Discuss the health issues associated with pizza.
- Explain various dishes similar to pizza.

1.06 BUN

https://en.wikipedia.org/wiki/Bun

Fig 1.33: Hot Dog
https://commons.wikimedia.org/wiki/File:Hotdog_-_Evan_Swigart.jpg#/media/File:Hotdog_-_Evan_Swigart.jpg

Fig 1.34: A Swedish-style saffron bun usually made during Christmas season, more specifically on Saint Lucy's Day
https://commons.wikimedia.org/wiki/File:Saffron_bun_20051213_001.jpg#/media/File:Saffron_bun_20051213_001.jpg

A bun is a small, sometimes sweet, bread, or bread roll. Though they come in many shapes and sizes, they are most commonly hand-sized or smaller, with a round top and flat bottom.

Buns are usually made from flour, sugar, milk, yeast and butter. Common varieties contain small fruit or nuts, are topped with icing or caramel, or filled with jam or cream. Some types of buns are filled with various meats.

"Bun" may also refer to particular types of filled dumplings, such as Chinese baozi. Some of these types of dumplings may be bread-like in texture.

A bun is normally made from dough that has been enriched with sugar and butter and sometimes egg. Without any of these the dough remains to be 'bread dough' rather than 'bun dough' and the resultant product will be called a roll, rather than a bun.

CHECK YOUR PROGRESS

- Describe the concept of bun.

1.07 PASTRY

https://en.wikipedia.org/wiki/Pastry

Pastry is a dough of flour, water and shortening (solid fats, including butter) that may be savoury or sweetened. Sweetened pastries are often described as bakers' confectionery. The word "pastries" suggests many kinds of baked products made from ingredients such as flour, sugar, milk, butter, shortening, baking powder, and eggs. Small tarts and other sweet baked products are called pastries. The French word pâtisserie is also used in English (with or without the accent) for the same foods. Common pastry dishes include pies, tarts, quiches and pasties.

Pastry can also refer to the pastry dough, from which such baked products are made. Pastry dough is rolled out thinly and used as a base for baked products.

Pastry is differentiated from bread by having a higher fat content, which contributes to a flaky or crumbly texture. A good pastry is light and airy and fatty, but firm enough to support the weight of the filling. When making a shortcrust pastry, care must be taken to blend the fat and flour thoroughly before adding any liquid. This ensures that the flour granules are adequately coated with fat and less likely to develop gluten. On the other hand, overmixing results in long gluten strands that toughen the pastry. In other types of pastry such as Danish pastry and croissants, the characteristic flaky texture is achieved by repeatedly rolling out a dough similar to that for yeast bread, spreading it with butter, and folding it to produce many thin layers.

Types

Shortcrust pastry

Shortcrust pastry is the simplest and most common pastry. It is made with flour, fat, butter, salt, and water to bind the dough. This is used mainly in tarts. It is also the pastry that is used most often in making a quiche. The process of making pastry includes mixing of the fat and flour, adding water, and

Fig 1.35: These are palmiers, or sugar cookies made with puff pastry. The recipe is from Jacques Torres' 'Dessert Circus' (ISBN 0688156541, p. 86-87).
https://commons.wikimedia.org/wiki/File:Palmeras_de_hojaldre_1.jpg#/media/File:Palmeras_de_hojaldre_1.jpg

Fig 1.36: Blackberry pie made with a pastry crust
https://commons.wikimedia.org/wiki/File:Blackberry_Pie_956px.jpg#/media/File:Blackberry_Pie_956px.jpg

Fig 1.37: Pecan and maple Danish pastry, a puff pastry type
https://commons.wikimedia.org/wiki/File:Pecan_and_Maple_Danish.JPG#/media/File:Pecan_and_Maple_Danish.JPG

rolling out the paste. The fat is mixed with the flour first, generally by rubbing with fingers or a pastry blender, which inhibits gluten formation by coating the gluten strands in fat and results in a short (as in crumbly; hence the term shortcrust), tender pastry. A related type is the sweetened sweetcrust pastry, also known as pâte sucrée, in which sugar and egg yolks have been added (rather than water) to bind the pastry.

Flaky pastry

Flaky pastry is a simple pastry that expands when cooked due to the number of layers. It bakes into a crisp, buttery pastry. The "puff" is obtained by the shard-like layers of fat, most often butter or shortening, creating layers which expand in the heat of the oven when baked.

Puff pastry

Puff pastry has many layers that cause it to expand or "puff" when baked. Puff pastry is made using flour, butter, salt, and water. The pastry rises up due to the water and fats expanding as they turn into steam upon heating. Puff pastries come out of the oven light, flaky, and tender.

Choux pastry

Choux pastry is a very light pastry that is often filled with cream. Unlike other types of pastry, choux is in fact closer to a dough before being cooked which gives it the ability to be piped into various shapes such as the éclair and profiterole. Its name originates from the French choux, meaning cabbage, owing to its rough cabbage-like shape after cooking.

Choux begins as a mixture of milk or water and butter which are heated together until the butter melts, to which flour is added to form a dough. Eggs are then beaten into the dough to further enrich it. This high percentage of water causes the pastry to expand into a light, hollow pastry. Initially, the water in the dough turns to steam in the oven and causes the pastry to rise; then the starch in the flour gelatinizes, thereby solidifying the pastry. Once the choux dough has expanded, it is taken out of the oven; a hole is made in it to let the steam out. The pastry is then placed back in the oven to dry out and become crisp. The pastry is filled with various flavors of cream and is often topped with chocolate. Choux pastries can also be filled with ingredients such as cheese, tuna, or chicken to be used as appetizers.

Phyllo (Filo)

Phyllo is a paper-thin pastry dough that is used in many layers. The phyllo is generally wrapped around a filling and brushed with butter before baking. These pastries are very delicate and flaky.

Hot water crust pastry

Hot water crust pastry is used for savoury pies, such as pork pies, game pies and, more rarely, steak and kidney pies. Hot water crust is traditionally used for making hand-raised pies. The usual ingredients are hot water, lard and flour, the pastry is made by heating water, melting the fat in this, bringing to the boil, and finally mixing with the flour. This can be done by beating the flour into the mixture in the pan, or by kneading on a pastry board. Either way, the result is a hot and rather sticky paste that can be used for hand-raising: shaping by hand, sometimes using a dish or bowl as an inner mould. As the crust cools, its shape is largely retained, and it is filled and covered with a crust, ready for baking. Hand-raised hot water crust pastry does not produce a neat and uniform finish, as there

Fig 1.38: Profiterole or cream puff, a choux pastry
https://commons.wikimedia.org/wiki/File:Cream_puff_Spivack.jpg#/media/File:Cream_puff_Spivack.jpg

Fig 1.39: Strudel, a phyllo pastry
https://commons.wikimedia.org/wiki/File:Omas_Apfelstrudel_aus_Prag.jpg#/media/File:Omas_Apfelstrudel_aus_Prag.jpg

Fig 1.40: A French pastry shop display
https://commons.wikimedia.org/wiki/File:Lille_Meert2.JPG#/media/File:Lille_Meert2.JPG

will be sagging during the cooking of the filled pie, which is generally accepted as the mark of a hand-made pie.

Definitions

Pastry: A type of food used in dishes such as pies or strudel.

Pastry bag or piping bag: An often cone-shaped bag that is used to make an even stream of dough, frosting, or flavored substance to form a structure, decorate a baked item, or fill a pastry with a custard, cream, jelly, or other filling.

Pastry board: A square or oblong board, preferably marble but usually wood, on which pastry is rolled out.

Pastry brake: Opposed and counter-rotating rollers with a variable gap through which pastry can be worked and reduced in thickness for commercial production. A small version is used domestically for pasta production.

Pastry case: An uncooked or blind baked pastry container used to hold savory or sweet mixtures.

Pastry cream: Confectioner's custard. An egg- and flour-thickened custard made with sweetened milk flavored with vanilla. Used as a filling for flans, cakes, pastries, tarts, etc. The flour prevents the egg from curdling.

Pastry cutters: Various metal or plastic outlines of shapes, e.g. circles, fluted circles, diamonds, gingerbread men, etc., sharpened on one edge and used to cut out corresponding shapes from biscuit, scone, pastry, or cake mixtures.

Pastry blender: A kitchen implement used to properly combine the fat and flour. Usually constructed of wire or plastic, with multiple wires or small blades connected to a handle.

Viennoiserie: French term for "Viennese pastry," which, although it technically should be yeast raised, is now commonly used as a term for many laminated and puff- and choux-based pastries, including croissants, brioche, and pain au chocolat.

Chemistry

Different kinds of pastries are made by utilizing the natural characteristics of wheat flour and certain fats. When wheat flour is mixed with water and kneaded into plain dough, it develops strands of gluten, which are what make bread tough and elastic. In a typical pastry, however, this toughness is unwanted, so fat or oil is added to slow down the development of gluten. Pastry flour can also be used, since it typically has a lower level of protein than all-purpose or bread flours.

Lard or suet work well because they have a coarse, crystalline structure that is very effective. Using unclarified butter does not work well because of its water content; clarified butter, which is virtually water-free, is better, but shortcrust pastry using only butter may develop an inferior texture. If the fat is melted with hot water or if liquid oil is used, the thin oily layer between the grains offers less of an obstacle to gluten formation and the resulting pastry is tougher.

History

The European tradition of pastry-making is often traced back to the shortcrust era of flaky doughs that were in use throughout the Mediterranean in ancient times. In the ancient Mediterranean, the Romans,

Fig 1.41: Assortment of cookies (also called biscuits in some areas)
https://commons.wikimedia.org/wiki/File:Weihnachtskeks(RobertK).jpg#/media/File:Weihnachtskeks(RobertK).jpg

Fig 1.42: Cream puff pastry, Dutch Moorkoppen
https://commons.wikimedia.org/wiki/File:Moorkoppen.jpg#/media/File:Moorkoppen.jpg

Greeks and Phoenicians all had filo-style pastries in their culinary traditions. There is also strong evidence that Egyptians produced pastry-like confections which were made by dipping a baked flour cake in honey and serving with desert nuts as toppings. They had professional bakers that surely had the skills to do so, and they also had needed materials like flour, oil, and honey. In the plays of Aristophanes, written in the 5th century BC, there is mention of sweetmeats, including small pastries filled with fruit. The Roman cuisine used flour, oil and water to make pastries that were used to cover meats and fowls during baking in order to keep in the juices, but the pastry was not meant to be eaten. A pastry that was meant to be eaten was a richer pastry that was made into small pastries containing eggs or little birds and that were often served at banquets. Greeks and Roman both struggled in making a good pastry because they used oil in the cooking process, and oil causes the pastry to lose its stiffness.

In the medieval cuisine of Northern Europe, pastry chefs were able to produce nice, stiff pastries because they cooked with shortening and butter. Some incomplete lists of ingredients have been found in medieval cookbooks, but no full, detailed versions. There were stiff, empty pastries called coffins or 'huff paste', that were eaten by servants only and included an egg yolk glaze to help make them more enjoyable to consume. Medieval pastries also included small tarts to add richness.

It was not until about the mid-16th century that actual pastry recipes began appearing. These recipes were adopted and adapted over time in various European countries, resulting in the myriad pastry traditions known to the region, from Portuguese "pastéis de nata" in the west to Russian "pirozhki" in the east. The use of chocolate in pastry-making in the west, so commonplace today, arose only after Spanish and Portuguese traders brought chocolate to Europe from the New World starting in the 16th century. Many culinary historians consider French pastry chef Antonin Carême (1784–1833) to have been the first great master of pastry making in modern times.

Pastry-making also has a strong tradition in many parts of Asia. Chinese pastry is made from rice, or different types of flour, with fruit, sweet bean paste or sesame-based fillings. The mooncakes are part of Chinese Mid Autumn Festival traditions, while cha siu bao, steamed or baked pork buns, are a regular savory dim sum menu item. In the 19th century, the British brought western-style pastry to the far east, though it would be the French-influenced Maxim in the 1950s that made western pastry popular in Chinese-speaking regions starting with Hong Kong. The term "western cake" (西餅) is used to refer to western pastry, otherwise Chinese pastry is assumed. Other Asian countries such as Korea prepare traditional pastry-confections such as tteok, hangwa, and yaksik with flour, rice, fruits, and regional specific ingredients to make unique desserts. Japan also has specialized pastry-confections better known as mochi and manjū. Pastry-confections that originate in Asia are clearly distinct from those that originate in the west, which are generally much sweeter.

Pastry chefs

Pastry chefs use a combination of culinary ability and creativity for baking, decoration, and flavoring with ingredients. Many baked goods require a lot of time and focus. Presentation is an important aspect of pastry and dessert preparation. The job is often physically demanding, requiring attention to detail and long hours. Pastry chefs are also responsible for creating new recipes to put on the menu, and they work in restaurants, bistros, large hotels, casinos and bakeries. Pastry baking is usually done in an area slightly separate from the main kitchen. This section of the kitchen is in charge of making pastries, desserts, and other baked good.

CHECK YOUR PROGRESS

- Describe the concept of pastry.
- Explain the various types of pastries.
- Describe the Choux pastry.
- Explain the various concepts and terms associated with pastries.
- Describe the historic evolution of pastries.

1.08 CAKE

https://en.wikipedia.org/wiki/Cake

Fig 1.43: A layered pound cake, with alternating interstitial spaces filled with raspberry jam and lemon curd, finished with buttercream frosting.

https://commons.wikimedia.org/wiki/File:Pound_layer_cake.jpg#/media/File:Pound_layer_cake.jpg

Cake is a form of sweet dessert that is typically baked. In its oldest forms, cakes were modifications of breads, but cakes now cover a wide range of preparations that can be simple or elaborate, and that share features with other desserts such as pastries, meringues, custards, and pies.

Typical cake ingredients are flour, sugar, eggs, butter or oil or margarine, a liquid, and leavening agents, such as baking soda or baking powder. Common additional ingredients and flavourings include dried, candied, or fresh fruit, nuts, cocoa, and extracts such as vanilla, with numerous substitutions for the primary ingredients. Cakes can also be filled with fruit preserves, nuts or dessert sauces (like pastry cream), iced with buttercream or other icings, and decorated with marzipan, piped borders, or candied fruit.

Cake is often served as a celebratory dish on ceremonial occasions, such as weddings, anniversaries, and birthdays. There are countless cake recipes; some are bread-like, some are rich and elaborate, and many are centuries old. Cake making is no longer a complicated procedure; while at one time considerable labor went into cake making (particularly the whisking of egg foams), baking equipment and directions have been simplified so that even the most amateur cook may bake a cake.

History

The term "cake" has a long history. The word itself is of Viking origin, from the Old Norse word "kaka".

The ancient Greeks called cake πλακοῦς (plakous), which was derived from the word for "flat", πλακόεις (plakoeis). It was baked using flour mixed with eggs, milk, nuts and honey. They also had a cake called "satura", which was a flat heavy cake. During the Roman period, the name for cake became "placenta" which was derived from the Greek term. A placenta was baked on a pastry base or inside a pastry case.

The Greeks invented beer as a leavener, frying fritters in olive oil, and cheesecakes using goat's milk. In ancient Rome, basic bread dough was sometimes enriched with butter, eggs, and honey, which produced a sweet and cake-like baked good. Latin poet Ovid refers his and his brother's birthday party and cake in his first book of exile, Tristia.

Early cakes in England were also essentially bread: the most obvious differences between a "cake" and "bread" were the round, flat shape of the cakes, and the cooking method, which turned cakes over once while cooking, while bread was left upright throughout the baking process.

Sponge cakes, leavened with beaten eggs, originated during the Renaissance, possibly in Spain.

Cake mixes

During the Great Depression, there was a surplus of molasses and the need to provide easily made food to millions of economically depressed people in the United States. One company patented a cake-bread mix in order to deal with this economic situation, and thereby established the first line of cake in a box. In so doing, cake as it is known today became a mass-produced good rather than a home- or bakery-made specialty.

Later, during the post-war boom, other American companies (notably General Mills) developed this idea further, marketing cake mix on the principle of convenience, especially to housewives. When sales dropped heavily in the 1950s, marketers discovered that the cake in a box rendered the cake-making function of housewives relatively dispiriting. This was a time when women, retired from the war-time labor force, and in a critical ideological period in American history, were confined to the domestic sphere and oriented towards the freshly blossoming consumerism in the US. In order to compensate for this situation, the marketing psychologist Ernest Dichter ushered in the solution to the cake mix problem: frosting. Since making the cake was so simple, housewives and other in-home cake makers could expend their creative energy on cake decorating inspired by, among other things, photographs in magazines of elaborately decorated cakes.

Ever since, cake in a box has become a staple of supermarkets, and is complemented with frosting in a can.

Fig 1.44: Birthday fruit cake

https://commons.wikimedia.org/wiki/File:Fruit_Cake_001.jpg#/media/File:Fruit_Cake_001.jpg

Fig 1.45: Chocolate cupcakes with cream icing and red sprinkles

https://commons.wikimedia.org/wiki/File:Chocolate_cupcakes_with_cream_icing_and_red_sprinkles.jpg#/media/File:Chocolate_cupcakes_with_cream_icing_and_red_sprinkles.jpg

Fig 1.46: Raisin cake

https://commons.wikimedia.org/wiki/File:Teekuchen,_Miltenberg,_Germany.JPG#/media/File:Teekuchen,_Miltenberg,_Germany.JPG

Varieties

Cakes are broadly divided into several categories, based primarily on ingredients and mixing techniques.

Although clear examples of the difference between cake and bread are easy to find, the precise classification has always been elusive. For example, banana bread may be properly considered either a quick bread or a cake.

Butter cakes are made from creamed butter, sugar, eggs, and flour. They rely on the combination of butter and sugar beaten for an extended time to incorporate air into the batter. A classic pound cake is made with a pound each of butter, sugar, eggs, and flour. Baking powder is in many butter cakes, such as Victoria sponge. The ingredients are sometimes mixed without creaming the butter, using recipes for simple and quick cakes.

Sponge cakes (or foam cakes) are made from whipped eggs, sugar, and flour. They rely primarily on trapped air in a protein matrix (generally of beaten eggs) to provide leavening, sometimes with a bit of baking powder or other chemical leaven added as insurance. Sponge cakes are thought to be the oldest cakes made without yeast. An angel food cake is a white sponge cake that uses only the whites of the eggs and is traditionally baked in a tube pan. The French Génoise is a sponge cake that includes clarified butter. Highly decorated sponge cakes with lavish toppings are sometimes called gateau; the French word for cake.

Chiffon cakes are sponge cakes with vegetable oil, which adds moistness.

Chocolate cakes are butter cakes, sponge cakes, or other cakes flavored with melted chocolate or cocoa powder. German chocolate cake is a variety of chocolate cake. Fudge cakes are chocolate cakes that contains fudge.

Coffee cake is generally thought of as a cake to serve with coffee or tea at breakfast or at a coffee break. Some types use yeast as a leavening agent while others use baking soda or baking powder. These cakes often have a crumb topping called streusel or a light glaze drizzle.

Baked flourless cakes include baked cheesecakes and flourless chocolate cakes. Cheesecakes, despite their name, aren't really cakes at all. Cheesecakes are in fact custard pies, with a filling made mostly of some form of cheese (often cream cheese, mascarpone, ricotta, or the like), and have very little flour added, although a flour-based or graham cracker crust may be used. Cheesecakes are also very old, with evidence of honey-sweetened cakes dating back to ancient Greece.

Butter or oil layer cakes include most of the traditional cakes used as birthday cakes, etc., and those sold as packaged cakes. Baking powder or bicarbonate of soda are used to provide both lift and a moist texture. Many flavorings and ingredients may be added; examples include devil's food cake, carrot cake, and banana bread.

Yeast cakes are the oldest and are very similar to yeast breads. Such cakes are often very traditional in form, and include such pastries as babka and stollen.

Some varieties of cake are widely available in the form of cake mixes, wherein some of the ingredients (usually flour, sugar, flavoring, baking powder, and sometimes some form of fat) are premixed, and the cook needs add only a few extra ingredients, usually eggs, water, and sometimes

Fig 1.47: cake mix in plastic packets

https://commons.wikimedia.org/wiki/File:Cake_mix_in_plastic_packet_photo.JPG#/media/File:Cake_mix_in_plastic_packet_photo.JPG

Fig 1.48: A fudge cake is a type of chocolate cake

https://commons.wikimedia.org/wiki/File:Chocolate_cake_-_be_Ehud_Kenan.jpg#/media/File:Chocolate_cake_-_be_Ehud_Kenan.jpg

Fig 1.49: A strawberry cake prepared as a layer cake

https://commons.wikimedia.org/wiki/File:Laika_strawberry_cake_(cropped).jpg#/media/File:Laika_strawberry_cake_(cropped).jpg

vegetable oil or butter. While the diversity of represented styles is limited, cake mixes do provide an easy and readily available homemade option for cooks who are not accomplished bakers.

Special-purpose cakes

Cakes may be classified according to the occasion for which they are intended. For example, wedding cakes, birthday cakes, cakes for first communion, Christmas cakes, Halloween cakes, and Passover plava (a type of sponge cake sometimes made with matzo meal) are all identified primarily according to the celebration they are intended to accompany. The cutting of a wedding cake constitutes a social ceremony in some cultures. The Ancient Roman marriage ritual of confarreatio originated in the sharing of a cake.

Particular types of cake may be associated with particular festivals, such as stollen or chocolate log (at Christmas), babka and simnel cake (at Easter), or mooncake. There has been a long tradition of decorating an iced cake at Christmas time; other cakes associated with Christmas include chocolate log and mince pies.

A Lancashire Courting Cake is a fruit-filled cake baked by a fiancée for her betrothed. The cake has been described as "somewhere between a firm sponge – with a greater proportion of flour to fat and eggs than a Victoria sponge cake – and a shortbread base and was proof of the bride-to-be's baking skills". Traditionally it is a two-layer cake filled and topped with strawberries or raspberries and whipped cream.

Shapes

Cakes are frequently described according to their physical form. Cakes may be small and intended for individual consumption. Larger cakes may be made with the intention of being sliced and served as part of a meal or social function. Common shapes include:

- Bundt cakes
- Cake balls
- Conical, such as the Kransekake
- Cupcakes and madeleines, which are both sized for a single person
- Layer cakes, frequently baked in a springform pan and decorated
- Sheet cakes, simple, flat, rectangular cakes baked in sheet pans
- Swiss rolls

Cake flour

Special cake flour with a high starch-to-gluten ratio is made from fine-textured, soft, low-protein wheat. It is strongly bleached, and compared to all-purpose flour, cake flour tends to result in cakes with a lighter, less dense texture. Therefore, it is frequently specified or preferred in cakes meant to be soft, light, and/or bright white, such as angel food cake. However, if cake flour is called for, a substitute can be made by replacing a small percentage of all-purpose flour with cornstarch or removing two tablespoons from each cup of all-purpose flour. Some recipes explicitly specify or permit all-purpose flour, notably where a firmer or denser cake texture is desired.

Cooking

A cake can fall, whereby parts of it sink or flatten, when baked at a temperature that is too low or too hot, when it has been underbaked and when placed in an oven that is too hot at the beginning of the

Fig 1.50: Malay steamed sponge cake
https://commons.wikimedia.org/wiki/File:Sponge_cake_at_Top_Cantonese_Restaurant.jpg#/media/File:Sponge_cake_at_Top_Cantonese_Restaurant.jpg

Fig 1.51: strawberry mousse cake
https://commons.wikimedia.org/wiki/File:Mousse_cake_7.jpg#/media/File:Mousse_cake_7.jpg

Fig 1.52: Wedding cakes at a bridal show
https://commons.wikimedia.org/wiki/File:At_the_Seattle_Bridal_Show2.jpg#/media/File:At_the_Seattle_Bridal_Show2.jpg

Fig 1.53: A chocolate sour cream bundt cake
https://commons.wikimedia.org/wiki/File:Chocolate_Sour_Cream_Bundt_Cake,_March_2008.jpg#/media/File:Chocolate_Sour_Cream_Bundt_Cake,_March_2008.jpg

Fig 1.54: A slice of strawberry cake with garnishing of strawberry
https://commons.wikimedia.org/wiki/File:Strawberry_Cake.JPG#/media/File:Strawberry_Cake.JPG

baking process. The use of excessive amounts of sugar, flour, fat or leavening can also cause a cake to fall. A cake can also fall when subjected to cool air that enters an oven when the oven door is opened during the cooking process.

Cake decorating

A finished cake is often enhanced by covering it with icing, or frosting, and toppings such as sprinkles, which are also known as "jimmies" in certain parts of the United States and "hundreds and thousands" in the United Kingdom. Frosting is usually made from powdered (icing) sugar, sometimes a fat of some sort, milk or cream, and often flavorings such as vanilla extract or cocoa powder. Some decorators use a rolled fondant icing. Commercial bakeries tend to use lard for the fat, and often whip the lard to introduce air bubbles. This makes the icing light and spreadable. Home bakers either use lard, butter, margarine, or some combination thereof. Sprinkles are small firm pieces of sugar and oils that are colored with food coloring. In the late 20th century, new cake decorating products became available to the public. These include several specialized sprinkles and even methods to print pictures and transfer the image onto a cake.

Special tools are needed for more complex cake decorating, such as piping bags and various piping tips, syringes and embossing mats. To use a piping bag or syringe, a piping tip is attached to the bag or syringe using a coupler. The bag or syringe is partially filled with icing which is sometimes colored. Using different piping tips and various techniques, a cake decorator can make many different designs. Basic decorating tips include open star, closed star, basketweave, round, drop flower, leaf, multi, petal, and specialty tips. An embossing mat is used to create embossed effects. A cake turntable that cakes are spun upon may be used in cake decoration.

Royal icing, marzipan (or a less sweet version, known as almond paste), fondant icing (also known as sugarpaste), and buttercream are used as covering icings and to create decorations. Floral sugarcraft or wired sugar flowers are an important part of cake decoration. Cakes for special occasions, such as wedding cakes, are traditionally rich fruit cakes or occasionally Madeira cakes, that are covered with marzipan and iced using royal icing or sugar-paste. They are finished with piped borders (made with royal icing) and adorned with a piped message, wired sugar flowers, hand-formed fondant flowers, marzipan fruit, piped flowers, or crystallized fruits or flowers such as grapes or violets.

CHECK YOUR PROGRESS

- Discuss the concept of cake.
- Describe the historic evolution of cake.
- Elaborate the concept of cake mix.
- Discuss the various types of cakes.
- Elaborate the importance of Lancashire Courting Cake.
- Describe the various ways to decorate cakes.

1.09 BISCUIT

https://en.wikipedia.org/wiki/Biscuit

Biscuit is a term used for a variety of primarily flour-based baked food products. The term is applied to two distinct products in North America and the Commonwealth of Nations and Europe. The North

American biscuit is typically a soft, leavened quick bread, and is covered in the article Biscuit (bread). This article covers the other type of biscuit, which is typically hard, flat and unleavened.

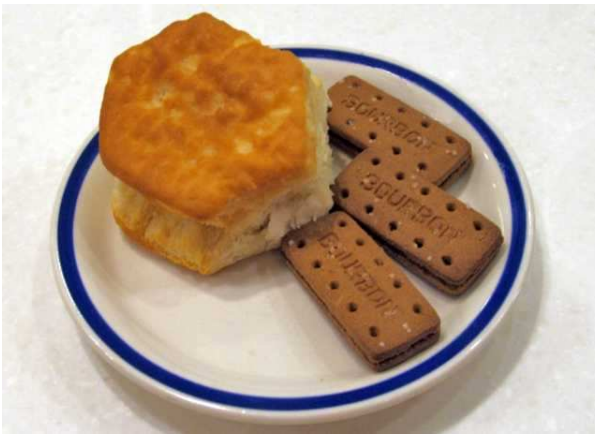

Fig 1.55: American biscuit (left) from Bob Evans Restaurant (Unit 141, Pittsburgh, PA) and British biscuits (right) from a packet of Britannia "Bourbon" biscuits (India), showing the difference between the American English and British English meaning of "biscuit."

https://commons.wikimedia.org/wiki/File:BiscuitsAmerican%26British.png#/media/File:BiscuitsAmerican%26British.png

Variations in meaning

In Commonwealth nations and Ireland, a biscuit is a small baked product that would be called either a “cookie” or a “cracker” in the United States and most of English-speaking Canada. Biscuits in the United Kingdom, the Isle of Man and Ireland are hard and may be savoury or sweet, such as chocolate biscuits, digestives, hobnobs, ginger nuts, rich tea, bourbons, and custard creams. In the Commonwealth Nations and Ireland, the term “cookie” typically refers to only one type of biscuit (chocolate chip cookie); however, it may also locally refer to specific types of biscuits or breads.

In the United States and some parts of English Canada, a “biscuit” is a quick bread, somewhat similar to a scone, and usually unsweetened. Leavening is achieved through the use of baking powder or when using buttermilk baking soda. Biscuits are usually referred to as either “baking powder biscuits” or “buttermilk biscuits” if buttermilk is used rather than milk as a liquid. A Southern regional variation using the term “beaten biscuit” (or in New England “sea biscuit”) is closer to hardtack than soft dough biscuits.

History

Biscuits for travel

The need for nutritious, easy-to-store, easy-to-carry, and long-lasting foods on long journeys, in particular at sea, was initially solved by taking live food along with a butcher/cook. However, this took up additional space on what were either horse-powered treks or small ships, reducing the time of travel before additional food was required. This resulted in early armies’ adopting the style of hunter-foraging.

The introduction of the baking of processed cereals including the creation of flour provided a more reliable source of food. Egyptian sailors carried a flat, brittle loaf of millet bread called dhourra cake

Fig 1.56: Wheat and cream biscuits
https://commons.wikimedia.org/wiki/File:Wheat_biscuit.jpg#/media/File:Wheat_biscuit.jpg

while the Romans had a biscuit called buccellum. Roman cookbook Apicius describes: “a thick paste of fine wheat flour was boiled and spread out on a plate. When it had dried and hardened, it was cut up and then fried until crisp, then served with honey and pepper.”

Many early physicians believed that most medicinal problems were associated with digestion. Hence, for both sustenance and avoidance of illness, a daily consumption of a biscuit was considered good for health.

Hard biscuits soften as they age. To solve this problem, early bakers attempted to create the hardest biscuit possible. Because it is so hard and dry, if properly stored and transported, navies’ hardtack will survive rough handling and high temperature. Baked hard, it can be kept without spoiling for years as long as it is kept dry. For long voyages, hardtack was baked four times, rather than the more common two. To soften hardtack for eating, it was often dunked in brine, coffee, or some other liquid or cooked into a skillet meal.

At the time of the Spanish Armada in 1588, the daily allowance on board a Royal Navy ship was one pound of biscuit plus one gallon of beer. Samuel Pepys in 1667 first 55lavor55ized naval victualling with varied and nutritious rations. Royal Navy hardtack during Queen Victoria’s reign was made by machine at the Royal Clarence Victualling Yard at Gosport, Hampshire, stamped with the Queen’s mark and the number of the oven in which they were baked. Biscuits remained an important part of the Royal Navy sailor’s diet until the introduction of canned foods. Canned meat was first marketed in 1814; preserved beef in tins was officially added to Royal Navy rations in 1847.

Confectionery biscuits

Early biscuits were hard, dry, and unsweetened. They were most often cooked after bread, in a cooling bakers’ oven; they were a cheap form of sustenance for the poor.

Fig 1.57: Dunking a biscuit
https://commons.wikimedia.org/wiki/File:Dunking_a_biscuit.jpg#/media/File:Dunking_a_biscuit.jpg

By the seventh century AD, cooks of the Persian empire had learnt from their forebears the techniques of lightening and enriching bread-based mixtures with eggs, butter, and cream, and sweetening them with fruit and honey. One of the earliest spiced biscuits was gingerbread, in French, pain d'épices, meaning "spice bread", brought to Europe in 992 by the Armenian monk Grégoire de Nicopolis. He left Nicopolis Pompeii, of Lesser Armenia to live in Bondaroy, France, near the town of Pithiviers. He stayed there for seven years and taught French priests and Christians how to cook gingerbread. This was originally a dense, treaclely (molasses-based) spice cake or bread. As it was so expensive to make, early ginger biscuits were a cheap form of using up the leftover bread mix.

With the combination of the Muslim invasion of the Iberian Peninsula, and then the Crusades developing the spice trade, the cooking techniques and ingredients of Arabia spread into Northern Europe. By mediaeval times, biscuits were made from a sweetened, spiced paste of breadcrumbs and then baked (e.g., gingerbread), or from cooked bread enriched with sugar and spices and then baked again. King Richard I of England (aka Richard the Lionheart) left for the Third Crusade (1189–92) with "biskit of muslin", which was a mixed corn compound of barley, rye, and bean flour.

As the making and quality of bread had been controlled to this point, so were the skills of biscuit-making through the craft guilds. As the supply of sugar began, and the refinement and supply of flour increased, so did the ability to sample more leisurely foodstuffs, including sweet biscuits. Early references from the Vadstena monastery show how the Swedish nuns were baking gingerbread to ease digestion in 1444. The first documented trade of gingerbread biscuits dates to the 16th century, where they were sold in monastery pharmacies and town square farmers markets. Gingerbread became widely available in the 18th century. The British biscuit firms of McVitie's, Carr's, Huntley & Palmer, and Crawfords were all established by 1850.

Along with local farm produce of meat and cheese, many regions of the world have their own distinct style of biscuit due to the historic prominence of this form of food.

Biscuits today

Commonwealth of Nations and Europe

Most modern biscuits can trace their origins back to either the hardtack ship's biscuit or the creative art of the baker:

- Ship's biscuit derived: Digestive, rich tea, hobnobs
- Baker's art: Biscuit rose de Reims

Biscuits today can be savoury or sweet, but most are small at around 5 cm (2.0 in) in diameter, and flat. The term biscuit also applies to sandwich-type biscuits, wherein a layer of "I" or icing is sandwiched between two biscuits, such as the custard cream, or a layer of jam (as in biscuits which, in the United Kingdom, are known as "Jammie Dodgers")

Sweet biscuits are commonly eaten as a snack food, and are, in general, made with wheat flour or oats, and sweetened with sugar or honey. Varieties may contain chocolate, fruit, jam, nuts, ginger, or even be used to sandwich other fillings.

The digestive biscuit and rich tea have a strong identity in British culture as the traditional accompaniment to a cup of tea and are regularly eaten as such. Some tea drinkers "dunk" biscuits in tea, allowing them to absorb liquid and soften slightly before consumption. Chocolate digestives, Rich tea, and Hobnobs were ranked the UK's top three favourite dunking biscuits in 2009, with custard creams coming third in a non-dunking poll.

Savoury biscuits or crackers (such as cream crackers, water biscuits, oatcakes, or crisp breads) are usually plainer and commonly eaten with cheese following a meal. Many savoury biscuits also contain additional ingredients for 57lavor or texture, such as poppy seeds, onion or onion seeds, cheese (such as cheese melts), and olives. Savoury biscuits also usually have a dedicated section in most European supermarkets, often in the same aisle as sweet biscuits. The exception to savoury biscuits is the sweetmeal digestive known as the "Hovis biscuit", which, although slightly sweet, is still classified as a cheese biscuit. Savoury biscuits sold in supermarkets are sometimes associated with a certain geographical area, such as Scottish oatcakes or Cornish wafer biscuits.

In general, the British, Australians, South Africans, New Zealanders, Nigerians, Kenyans, Indians, Pakistanis, Sri Lankans, Singaporeans, and the Irish use the British meaning of "biscuit" for the sweet biscuit, the terms biscuit and cookie are used interchangeably, depending on the region and the speaker, with biscuits usually referring to hard, sweet biscuits (such as digestives, Nice, Bourbon creams, etc.) and cookies for soft baked goods (i.e. chocolate chip cookies), In Canada, this term is now used less frequently, usually with imported brands of biscuits or in the Maritimes; however, the Canadian Christie Biscuits referred to what Americans would call crackers. This sense is at the root of the name of the United States' most prominent maker of cookies and crackers, the National Biscuit Company, now called Nabisco.

North America

In the United States and parts of Canada a biscuit is a small bread with a firm browned crust and a soft interior. These biscuits are particularly popular in the American South, where generations have passed

down family recipes. They are made with baking powder or baking soda as a chemical leavening agent rather than yeast (a quick bread) although they can also be made using yeast (and are then called angel biscuits) or a sourdough starter.

They are traditionally served as a side dish with a meal. As a breakfast item they are often eaten with butter and a sweet condiment such as molasses, light sugarcane syrup, maple syrup, sorghum syrup, honey, or fruit jam or jelly. With other meals, they are usually eaten with butter or gravy instead of sweet condiments. However, biscuits and gravy (biscuits covered in country gravy) or biscuits with sausage are usually served for breakfast, sometimes as the main course. A biscuit may also be used to make a breakfast sandwich by slicing it in half and placing eggs and/or breakfast meat in the middle.

CHECK YOUR PROGRESS

- Explain the concept of biscuit.
- Elaborate the historical development of concepts in biscuit.
- Discuss the development of confectionery biscuit.

1.10 INDIAN BREAD

https://en.wikipedia.org/wiki/Indian_bread

Indian breads are a wide variety of flatbreads and crêpes which are an integral part of Indian cuisine. Their variation reflects the diversity of Indian culture and food habits.

Ingredients

Most flat breads from northern India are unleavened and made primarily from milled flour, usually atta or maida, and water. Some flatbreads, especially paratha, may be stuffed with vegetables and layered with either ghee or butter.

In Maharashtra and Karnataka breads are also made from grains like jowar (Sorghum bicolor), ragi, a finger millet (scientific name: Eleuisine Coracana) and bajra or pearl millet, and is called "rotla" in Gujarat and "bhakri" in Maharashtra.

In southern India and the West Coast, most flat breads are basically crêpes made from peeled and split black lentils (urad dal) and rice. Popular varieties include dosa, Appam, uttapam and rice rotis and ragi rotis.

Most Indian breads make use of the yeast spores in the atmosphere for fermentation.

Preparation

In northern India, a dough of the main ingredient is prepared and flattened by rolling. Most Indian breads, such as roti, kulcha and chapati, are baked on tava, a griddle made from cast iron, steel or aluminum. Others such as puri and bhatura are deep-fried. The dough for these breads is usually made with less water in order to reduce oil soaked up when frying.

In Southern India, a batter of rice and black lentils is prepared and ladled in small amounts onto a hot greased skillet, where it is spread out into a thin circle and fried with oil or ghee until golden brown.

Fig 1.58: Bhatoora
https://commons.wikimedia.org/wiki/File:Bhatura.jpg#/media/File:Bhatura.jpg

Fig 1.59: Chapati/Roti
https://commons.wikimedia.org/wiki/File:Chapatiroll.jpg#/media/File:Chapatiroll.jpg

Fig 1.60: Parotta
https://commons.wikimedia.org/wiki/File:Parotta.jpg#/media/File:Parotta.jpg

Fig 1.61: Kulchas with choley'
https://commons.wikimedia.org/wiki/File:Kulchachole.jpg#/media/File:Kulchachole.jpg

Fig 1.62: Naan
https://commons.wikimedia.org/wiki/File:Naan_shiva.jpg#/media/File:Naan_shiva.jpg

In Western India (including the states of Maharashtra, Gujarat and Rajasthan) bread may be made from coarse grains such as bajra, sorghum or ragi, though wheat is the staple in these regions. The grains and/or cereals are usually milled into a fine powder, and mixed with a little water to make a smooth dough. This dough is patted into a circle by hand - either by holding it between the two hands or by placing it on an upturned plate or other flat surface.

In Maharashtra a multi-grain flat-bread called "thalipeeth" is also prepared. It contains many grains and cereals like wheat, rice, bajra, jowar, ragi, Macrotyloma_uniflorum horsegram, green gram, black gram, chickpeas and so on. Each grain or cereal is roasted separately and then milled together into a fine powder. Spices and chopped onions are added along with water to make the dough, and it is patted into circles, after which it is roasted on a griddle with some ghee or oil. It is often served with home made butter.

Indian breads of Central Asian origin, such as naan and tandoori roti, are baked in a tandoor. Naan is usually leavened with yeast.

Varieties

Different varieties of Indian bread include: Chapati, Phulka, Puri, Roti, Bajra Rotla, Thepla, Paratha, Naan, Kulcha, Bhatoora, Baqar Khani, Appam, Dosa, Luchi, Puran Poli, Pathiri, Parotta and many more. Some of these, like Paratha and Roti have many varieties. Some varieties depend on the kind of grain used to prepare them, and others depend on the fillings they contain.

The Appam is a fermented crepe usually prepared with finely powdered rice flour. In the South Indian state of Kerala, many varieties are made like Kallappam, Vattayappam and Palappam (Vellayappam). The kallappam is made on flat iron griddles. The vattayappam is a steamed bread, and palappam is made in small shallow bottomed pans, which are kept covered while the bread cooks. Palappam has a thin crisp lace like strip around it.

CHECK YOUR PROGRESS

- Elaborate the various types of Indian breads.
- Explain how various Indian breads are prepared.

1.11 END QUESTIONS

The following questions should help you prepare for the End Examinations. These questions are for 5 marks each and should take you 11 minutes under examination conditions.

1. Describe the concept of bakery.
2. Explain the history of bakery indicating the evolution of bakery over the years
3. Explain the cocept of specialization in bakery.
4. Elaborate what is meant by commercialization of bakery.
5. Elaborate the various bakery products.
6. Elaborate the social and emotional importance of bread.
7. Discribe the history of bread.

8. Explain the various types of breads.
9. Elaborate the properties of bread.
10. Explain the culinary uses of bread.
11. Discuss the preparation of bread.
12. Explain the concept of leavening and various leavening agent.
13. Elaborate the cultural significance of bread.
14. Discuss the concept of pizza.
15. Describe the evolution of pizza over centuries.
16. Explain the preparation of pizza.
17. Discuss the variety of pizza.
18. Discuss the health issues associated with pizza.
19. Explain various dishes similar to pizza.
20. Describe the concept of bun.
21. Describe the concept of pastry.
22. Explain the various types of pastries.
23. Describe the Choux pastry.
24. Explain the various concepts and terms associated with pastries.
25. Describe the historic evolution of pastries.
26. Discuss the concept of cake.
27. Describe the historic evolution of cake.
28. Elaborate the concept of cake mix.
29. Discuss the various types of cakes.
30. Elaborate the importance of Lancashire Courting Cake.
31. Describe the various ways to decorate cakes.
32. Explain the concept of biscuit.
33. Elaborate the historical development of concepts in biscuit.
34. Discuss thedevelopment of confectionery biscuit.
35. Elaborate the various types of Indian breads.
36. Explain how various Indian breads are prepared.

1.12 REFERENCES

1. https://en.wikipedia.org/wiki/Bakery
2. https://en.wikipedia.org/wiki/Bread
3. https://en.wikipedia.org/wiki/Pizza
4. https://en.wikipedia.org/wiki/Bun
5. https://en.wikipedia.org/wiki/Pastry
6. https://en.wikipedia.org/wiki/Cake
7. https://en.wikipedia.org/wiki/Biscuit
8. https://en.wikipedia.org/wiki/Indian_bread

UNIT 2 : PREPARING BAKERY ITEMS

2.00 BEFORE WE BEGIN

In the last Unit we have studied the concept of Bakery. We have seen the various bakery items in use. Bakery products are carbohydrate based. These may also be seen as being flour based items. We have seen various mouth watering bakery products like bread, pastries, pizza and Indian breads like roti, naan and kulcha.

We will study the preparation of these bakery items in this unit. We will study various methods of making bread, the features of a good bread loaf, various bread recipes, various types of cakes and pastries. Understanding these preparation thoroughly are very important for you as a hospitality professional as breads and cakes are essential part of our diets in hotels.

2.01 UNIT OBJECTIVES

After studying this unit you will be able to

- Elabate various ways to work with bakery products.
- Explain how one can tell when a cake is cooked.
- Elaborate the process of measuring syrups using tablespoons.
- Explain how vanilla buns are prepared.
- Explain how cream corks are prepared.
- Explain how mushroom cakes are prepared.
- Explain how sponge cakes are prepared using basic method.
- Explain how sponge cakes are prepared using milk powder.
- Explain how fatless sponge cakes are prepared.
- Explain how swiss rolls are prepared.
- Explain how sponge fruit flans are prepared.
- Explain how Russian sandwitch are prepared.
- Explain how **check cake**s are prepared.
- Explain how plain fruit cakes are prepared using rub in method.
- Explain how cherry cakes are prepared.
- Explain how fruit cakes are prepared using creaming method.
- Explain how love cakes are prepared.
- Explain how Christmas cakes are prepared.
- Explain how light coffee cakes are prepared.
- Explain how quick coffee cakes are prepared.
- Explain how Streusel Coffee Cake are prepared.
- Explain how Date & Walnut Gingerbread are prepared.
- Explain how Swedish Tea Rings are prepared.
- Explain how shortcrust pastries are prepared.
- Explain how **jam tarts** are prepared.
- Explain how lemon curd tarts are prepared.
- Explain how date and nut turnover are prepared.
- Explain how veg mince pies urnover are prepared.

- Explain how custard tarts are prepared.
- Explain how pineapple tartlets are prepared.
- Elaborate the features of a good loaf.
- Discuss the faults in breads and their causes.
- Elaborate the important steps in bread making.
- Explain the various ingredients used in making breads.
- Discuss the preparation of bread rolls using no time dough.
- Discuss the preparation of bread rolls using straight methods.
- Discuss the preparation of coverings for bread rolls.
- Discuss the preparation of savory picnic rolls.
- Discuss the preparation of bread rolls using no time dough.
- Discuss the preparation of bread using straight dough methods.
- Discuss the preparation of bread using mormal straight method.
- Discuss the preparation of bread using spong method.
- Discuss the preparation of whole wheat bread using no time dough.
- Discuss the preparation of garlic bread.
- Discuss the preparation of garlic and cheese breads.
- Discuss the preparation of kulcha.
- Discuss the preparation of sweet dough.

2.02 SOME TIPS IN PRACTICE OF BAKERY

1. It is usually not required to grease tins for pastry. When applying grease on tins for cakes, puddings, etc. use hydrogenated fat (vanaspati ghee).
2. Dried fruit should always be cleaned before it is used. It must be washed thoroughly, stems removed and spread on a cloth or over a rack covered with muslin. Never use wet fruit. A little refined flour may be mixed with the fruit before adding it to cake. Glace fruits should also be washed and dried.
3. If you want to measure syrup, dip a tablespoon into boiling water then use it quickly and the syrup will fall of the spoon easily.
4. If creamed fat and sugar tend to curdle after egg is added, add 1 tablespoon of the measured flour.
5. The hottest part of an oven is usually the top shelf. Bake large cakes in the middle of the oven, small cakes on the top shelf. Centre of oven corresponds most closely with the dial setting.
6. Fill tins only ¾ full to allow for rising. For large cakes make a slight depression in the middle so that they will rise flat.
7. To test when cake is cooked:
    a) Sponge and sandwich cakes: Press the center of the cake very lightly with a finger; the impression should spring back immediately. Always let cake cool slightly before removing from tin.
    b) For large cakes such as fruit and Madeira, insert a fine skewer it should come out clean.
8. It is necessary to pre- heat an oven for 15-20 minutes before using. Arrange shelves before heating oven. If oven door has to be opened while cakes are baking, it should be done gently as an onrush of cold air may spoil baking.

CHECK YOUR PROGRESS

- Elabate various ways to work with bakery products.
- Explain how one can tell when a cake is cooked.
- Elaborate the process of measuring syrups using tablespoons.

2.03 SMALL CAKES

VANILLA BUNS

Fig 2.01: Vanilla Buns are some of the basic variety of cakes

http://www.scandikitchen.co.uk/vanilla-buns-six-ways/

Ingredients	For 30 buns
Butter	110 gm
Sugar	230 gm
Refined flour	230 gm
Baking powder	1/2 tsp
Eggs	4
Vanilla	1/2 tsp
Milk (if necessary)	

Method

First you have to cream butter and sugar until it is light and fluffy. Then you have to beat eggs and add them gradually. Remember that you have to continue beating mixture. Next, you have to mix together flour and baking powder and fold into creamed mixture with sufficient milk. You should also ensure that it has attained a dropping consistency. You further add essence, mix lightly but well. Next step is to fill some greased patty tins to their half levels. Finally, you have to bake at 195 ^{o}C-205^{o} C- (375 ^{o}F- 400 ^{o} F approx.) for 15 to 20 minutes. You can tell that the process is over by touching it, it should feel firm to the touch.

CREAM CORKS

Ingredients	For 15 no
Refined flour	115 gm
Baking powder	¼ tsp
Sugar	115 gm
Butter	55 gm
Eggs	2
Vanilla	a few drops
Butter cream	
Icing sugar	85gm
Butter	45 gm

Method

First you have to make sponge buns using creaming method. Bake at 205 C (400 F approx.) for 15 minutes. Cool. Then cut out cork with 1.5 cm (½ “) nozzle. Fill hole with cream using a star nozzle and replace cut out cake to resemble cork.

MUSHROOM CAKES

Ingredients	Quantity
Refined flour	115 gm
Baking powder	¼ tsp
Eggs	2
Vanilla	
Butter	55 gm
Sugar	115 gm

Chocolate Icing

Butter	45 gm
Cocoa	1 tsp
Icing sugar	85 gm

Method

1. Make sponge buns using creaming method.
2. Bake at 205 C (400 F approx.) for 12-15 minutes. Cool.
3. Cut as for corks.
4. Spread with layer of chocolate icing and mark with fork.
5. Use cut out cake for stalk.

CHECK YOUR PROGRESS

- Explain how vanilla buns are prepared.
- Explain how cream corks are prepared.
- Explain how mushroom cakes are prepared.

2.04 LARGE CAKES

BASIC SPONGE CAKE

Fig 2.02: songe cake is traditionally very popular

https://www.bbcgoodfood.com/recipes/1218636/-homemade-sponge-cake-

Ingredients	Quantity
Refined flour	115 gm
Baking powder	¼ tsp
Sugar	115 gm
Milk, a little necessary	for mixing
Vanilla or other flavouring	a few drops
Butter or margarine	60 gm
Eggs	2

Butter cream

Butter	85 gm
Icing sugar	170 gm
Flavouring or cocoa	

Method

1. Sieve flour and baking powder .2. Crush sugar if necessary. 3. Cream Butter and sugar very well until light and fluffy.4. Beat eggs. Add flavor and add to mixture gradually, beating all the time. 5. Fold in sieved flour very lightly with a little milk to get a dropping consistency. 6. Put into a prepared tin and bake at 190 C (375 F approx.) for 25 minutes. Cool. 7. Prepare butter cream by creaming together butter and sugar and use to decorate cake.

SPONGE CAKE (with milk powder)

Fig 2.03: Spnonge Milk powder cake

http://vegetarian-planet.blogspot.com/2012/01/eggless-milkpowder-cake.html

Ingredients	Quantity
Refined flour	115 gm
Baking powder	¼ tsp
Sugar	15 gm
Butter	60 gm
Eggs	2
Water	1-2 tbsp
Milk powder	15 gm
Vanilla	a few drops

Method

1. Sieve flour with milk powder. 2. Cream butter and sugar. 3. Beat eggs and beat into cream. 4. Fold in sieved flour. 5. Add water and essence to get a dropping consistency. 6. Pour mixture into a lined cake tin and bake at 1750 C (3500 F approx.) for 20-25 minutes.

FATLESS SPONGE CAKE

Fig 2.04: Fatless songe cake

http://www.ijy.cc/2017/01/fatless-sponge.html

Ingredients	Quantity
Eggs	4
Castor sugar	115 gm
Baking powder	½ tsp
Refined flour	115 gm
Warm water	30ml

Method

1. Sieve flour with baking powder. 2. Beat eggs for 2-3 minutes, add Sugar and place bowl over boiling water being careful not to let the water touch the bowl. 3. Beat well until thick and creamy. 4. Fold in sieved flour very lightly along with hot water. 5. Pour into prepared tins and immediately bake in a hot oven at 200 C (400 F approx.) for 10-12 minutes.

SWISS ROLL

Fig 2.05: Swiss Roll

https://www.deliciousmagazine.co.uk/recipes/swiss-roll/

Ingredients	Quantity
Eggs	2
Refined flour	85 gm
Sugar	85 gm
Vanilla	a few drops
Hot water	1 tbsp

Baking powder	¼ tsp
Jam	55 gm

Method

1. Break eggs into a bowl with sugar and place bowl over boiling water being careful not to let the water touch the bowl. 2. Whisk until stiff and creamy. 3. Sift flour and baking powder into mixture folding in flour carefully. Add hot water and fold in. 4. Pour mixture into a greased Swiss roll tin and bake at 205 C (400 F approx) for 10-12 minutes. 5. Quickly turn on to paper dusted with sugar. 6. Remove lining paper on top. Cut off stiff edges. Spread jam and roll with help of paper. 7. Cool in paper.

Note. This can be decorated and made into a 'Yule Log' using butter icing made with 165 gm icing sugar, 30 gm cocoa, and 85 gm butter.

SPONGE FRUIT FLAN

Fig 2.06: Fruit Flan (German version) with strawberry

https://www.quick-german-recipes.com/fruit-flan-recipe.html

Ingredients	Quantity
Refined flour	85 gm
Bananas	2

Sugar	85 gm
Eggs	3
Vanilla	a few drops
Hot water	1-2 tbsp
Cherries	4
Bananas	
(Sliced and sprinkled with lime juice)	2

Corn flour glaze: (jam flavoured)

Corn flour	15 gm
Sugar	30 gm
Water	150 ml
Jam	30 ml

Method

1. Beat eggs and sugar to a thick cream in a bowl over hot water. 2. Add essence and sieved flour, folding in flour with a palette knife. 3. Add 1-2 tbsp hot water. 4. Grease and flour flan tin and put mixture. 5. Bake at 230 C (450 F approx.) for about 10-12 minutes. 6. When cool, lift off flan onto a plate. Arrange sliced bananas. Decorate with cherries and pour glaze over.

Glaze

1. Blend corn flour with a little cold water. 2. Boil remaining water and Pour over blended corn flour, stirring well. 3. Add sugar and jam. Return to fire and cook till thick. 4. Pour over bananas, covering them completely.

RUSSIAN SANDWICH

Ingredients	Quantity
Eggs	2
Refined flour	55 gm
Sugar	55 gm

Filling

Milk	150 ml
Custard powder	15 gm
Sugar	15 gm
Butter	20 gm

Fig 2.07: Russian Sandwich Cake is one of the popular cake variety

https://www.pinterest.co.uk/pin/220887556696845393/?lp=true

Vanilla	1/8 tsp
Hot water	1 tbsp
Baking powder	¼ tsp

Topping

Icing sugar	85 gm
Water to mix	
Cashew nuts	30 gm

Method

1. Prepare sponge using the over hot water method (see recipe fatless sponge cake). 2. Pour into a prepared sandwich tin and bake at 200 C (400 F approx.) for 10-12 minutes. Cool. 3. Make custard with milk, Custard powder and sugar. 4. Remove from fire and beat in butter, till smooth. 5. Cut cake into two, spread custard lightly and sandwich together. 6. Chop and roast cashew nuts. 7. Pouring icing on top of cake. Decorate a 2.5 cm border round the edge with chopped, roasted nuts.

CHECK CAKE

Fig 2.08: Check Cake

https://recipesindemand.blogspot.com/2011/03/check-cake-by-chef-shireen-anwar.html

For butter: 1 ounce = 1 tbsp

For sugar: 1 ounce = 2 tbsp leveled

For flour : 1 ounce = 2 tbsp heaped.

Ingredients:

Butter	12 ounces (or 12 tbsp)
Sugar	12 ounces (or 24 tbsp leveled)
Refined flour (Maida)	12 ounces (or 24 tbsp heaped)
Baking powder	3 tsp
Eggs	6
Vanilla essence	2 tsp
Coco powder	3 tsp
Milk	4 tsp (or 1/4 cup)

Butter Icing:

Butter	6 ounces
Icing sugar	12 ounces

Method:

- Take 3 sandwich pans, grease them and place butter paper.

- Now beat butter and add sugar spoon by spoon and beat it till light and creamy, then add vanilla essence and beat it. Now start adding egg yolks one by one and beat it.

- Ina separate bowl beat egg whites until they are stiff and fluffy.

- Sieve refined flour (maida) and baking powder in a separate bowl (3 times).

- Now fold egg whites in butter mixture with spatula or wooden spoon, then fold refined flour + baking powder in it. Also add 1/4 cup milk and fold in it.

- Make a paste with coco powder and 2 tbsp of milk.

- Divide cake batter into two (keep one portion in large quantity).

- Add coco powder paste in large quantity batter and mix it well. And keep the other batter as it is (vanilla batter).

- In 2 Pans, first arrange coco batter all around the circle, then vanilla batter, lastly coco batter. Arrange the 3 pan with vanilla batter first, then coco batter, then again vanilla batter.(you can also place the divider rings in the pan and can place the batter easily as shown in picture)

Fig 2.09: Preparing Check cake using divider ring

https://recipesindemand.blogspot.com/2011/03/check-cake-by-chef-shireen-anwar.html

Fig 2.10: Preparing Chck Cake

https://recipesindemand.blogspot.com/2011/03/check-cake-by-chef-shireen-anwar.html

- Bake in a preheated oven at 180 0c for 35 minutes.

- When baked, place them on wire rack so that it gets cool completely.

For butter icing:

Beat butter, then gradually add icing sugar in it, beat till thick and creamy. Use as required.

For assembling:

On a cake plate, put the coco batter cake first, apply strawberry jam, place the vanilla batter cake on it, then again apply strawberry jam and finally place the 3rd, coco cake on top. Apply the prepared icing on top and decorate the top with check design.

(Note: When stacking the layers of the cake, make sure the bottom and top layer are the same pattern so you end up with the checkerboard pattern when you cut the cake.)

CHECK YOUR PROGRESS

- Explain how sponge cakes are prepared using basic method.
- Explain how sponge cakes are prepared using milk powder.
- Explain how fatless sponge cakes are prepared.
- Explain how swiss rolls are prepared.
- Explain how sponge fruit flans are prepared.
- Explain how Russian sandwitch are prepared.
- Explain how **check cake**s are prepared.

2.05 FRUIT CAKE

FRUIT CAKE (plain) (rub-in-method)

Fig 2.11: Rub in is one of the cake making methods

https://makebakecake.weebly.com/cake-making-methods.html

Ingredients	Quantity
Refined flour	170 gm
Baking powder	¾ tsp
Mixed spice	½ tsp
Egg (large)	1
Milk	30 ml
Shortening	85 gm
Sugar	85 gm
Sultanas	45 gm
Candied peel	45 gm

Method

1. Clean sultanas and chop candied peel. 2. Sieve flour, baking powder and mixed spice. 3. Rub fat into flour. Add sugar and mix. 4. Add fruit, well-beaten egg and milk to get a dropping consistency. 5. Put into a lined tin and bake at 175C (350 F approx.) for about 45 minutes.

CHERRY CAKE

Fig 2.12: Cherry cake are popular in young groups

https://www.bbcgoodfood.com/recipes/138/chocolate-dipped-cherry-cake

Ingredients	Quantity
Refined flour	115 gm
Baking powder	½ cup
Salt	a pinch
Butter	85 gm
Sugar	85 gm
Glace cherries	55 gm
Eggs	2
Milk	1 tbsp
Vanilla	a few drops

Method

1. Grease and line a cake tin. 2. Wash and cut cherries into quarters. 3. Sieve flour, baking powder and salt. Add cherries 4. Cream fat and sugar thoroughly and beat in well-beaten eggs gradually. 5. Lightly fold in mixture together with a little milk to get a dropping consistency and blend mixture well. 6. Put into prepared tin and bake in a moderate oven 175 C (350 F approx.) until firm the golden brown.

FRUIT CAKE (creaming method) (A)

Ingredients	Quantity
Refined flour	130 gm
Mixed spice	½ tsp
Baking powder	¼ tsp
Butter	85 gm
Sugar	85 gm
Sugar for caramel	30 gm
Salt	a pinch
Cherries	30 gm
Sultanas	85 gm
Currants	45 gm
Candied peel	30 gm
Cashew nuts	45 gm

Eggs	2
Milk	30 ml

Method

1. Line a tin. 2. Wash, pick and dry fruit. Chop cashew nuts and candied peel. Cut cherries. 3. Sieve flour, baking powder and spice 4. Cream butter and sugar till light and fluffy. 5. Beat eggs and add to mixture gradually. 6. Add fruits and flour gradually with milk to which caramel has been added to get a stiff dropping consistency. 7. Put into prepared tin and bake at 160 C (325 F approx.) for 1-1 ½ hours.

Fig 2.13: Light Fruit Cake can come in various types

5. http://www.joyofbaking.com/LightFruitCakeRecipe.html

FRUIT CAKE (creaming method) (B)

Ingredients	Quantity
Refined flour	225 gm
Baking powder	3 tsp
Salt	1 pinch
Mixed spices	½ tsp
Cinnamon powder	¼ tsp
Grated nutmeg	1/8 tsp

Margarine	115 gm
Sugar	55 gm
Treacle or Golden Syrup	1 tbsp
Marmalade	1 tbsp
Sultanas	
Currants and Dates	340 gm
Milk and Water	6 tbsp
Eggs	2

Method

1. Prepare fruit, wash dry sultanas and currants and stone dates. 2. Sieve together flour, baking powder and salt and spices. 3. Cream margarine and sugar till light and fluffy. 4. Add syrup or treacle and marmalade. Beat well. 5. Add well-beaten eggs. Continue beating. 6. Fold in flour alternately with liquid and fruit. 7. Pour into a lined cake tin and bake at 150 C (300 F approx.) for 2 hours.

LOVE CAKE

Fig 2.14: Love Cake can come in a variety of shapes

https://www.myflowertree.com/white-and-red-love-cake-3543.jpg

Ingredients	quantity
Semolina	375 gm
Soft sugar	115 gm
Butter	180 gm
Cashew nuts	375 gm
Egg yolks	12
Egg whites	3
Rose water	15 ml
Honey	45 ml
Nutmeg (grated)	1
Lemon rind	
Powdered cinnamon	
Vanilla	2 tsp

Method

1. Soften butter with semolina and set aside in a warm oven for a few minutes. It should not be oily. Butter should be well soaked into Semolina. 2. Cream egg yolks with soft sugar until very light. 3. Add all the spices and essence, add semolina – butter mixture. 4. Add Cashew nuts mined or finely chopped. 5. Pour into a cake tin lined with 2 layers of paper and bake at 150 C (300 F approx.) until done. If a nice Crust is desired; sprinkle a thin layer of icing sugar.

CHRISTMAS CAKE

Ingredients	quantity
Refined flour	170 gm
Butter	140 gm
Castor sugar	140 gm
Currants	140 gm
Sultanas	140 gm
Valencia raisins	140 gm
Cherries	115 gm
Mixed peel	85 gm
Lemon rind	1

Black treacle	1 tsp
Eggs	4
Mixed spice	½ tsp

Fig 2.15: Vegan gluten free christmas cake are preferred by health conscious people

https://glutenfreescdandveggie.blogspot.com/2013/12/vegan-gluten-free-christmas-cake-gf.html

Method

1. Prepare fruit. 2. Cream butter and sugar till light and fluffy. 3. Add Eggs gradually and beat well. 4. Stir in flour. 5. Add fruit, treacle, lemon rind and spice. 6. Put into a 18 cm (7") cake tin lined with paper. 7. Cook in a moderate oven at 150 - 160 C (300 _325 F approx.) for about 3hours. 8. Keep in airtight tin 6-8 weeks before using.

CHECK YOUR PROGRESS

- Explain how plain fruit cakes are prepared using rub in method.
- Explain how cherry cakes are prepared.
- Explain how fruit cakes are prepared using creaming method.
- Explain how love cakes are prepared.
- Explain how Christmas cakes are prepared.

2.06 AMERICAN COFFEE CAKES

LIGHT COFFEE CAKES

Fig 2.16: Light coffee cakes are very popular in all age groups

https://firstlookthencook.com/tag/light-coffee-cake/

These are served at a midmorning coffee break or at tea time.

Ingredients

Crumble:

- 1/4 cup old-fashioned rolled oats
- 1/4 cup packed brown sugar
- 3 tablespoons all-purpose flour
- 1/8 teaspoon salt
- 2 tablespoons unsalted butter, chilled
- 1/4 cup chopped pecans, toasted

Cake:

- 6.75 ounces all-purpose flour (about 1 1/2 cups)
- 1 1/2 teaspoons freshly ground nutmeg
- 1 teaspoon baking powder
- 1/2 teaspoon baking soda
- 1/4 teaspoon salt
- 3 tablespoons unsalted butter, softened
- 3/4 cup granulated sugar
- 1 large egg
- 1 large egg yolk
- 1/2 cup 2% reduced-fat milk
- 1/4 cup reduced-fat sour cream
- 1 1/2 teaspoons vanilla extract

- Baking spray with flour

Preparation

Preheat oven to 350°.

To prepare crumble, combine first 4 ingredients in a bowl, stirring with a whisk. Cut in 2 tablespoons butter using a pastry blender or two knives until mixture resembles coarse meal. Stir in toasted pecans.

To prepare cake, weigh or lightly spoon 6.75 ounces flour into dry measuring cups; level with a knife. Combine 6.75 ounces flour and next 4 ingredients (through 1/4 teaspoon salt); stir with a whisk. Place 3 tablespoons butter and granulated sugar in a medium bowl; beat with a mixer at medium speed until well combined. Add whole egg and egg yolk, 1 at a time, beating well after each addition. Add milk, sour cream, and vanilla; beat at low speed for 1 minute or until well combined. Add the flour mixture; beat at low speed 1 minute or just until combined.

Spoon half of batter into an 8-inch round metal cake pan coated with baking spray. Sprinkle with half of crumble mixture. Spread remaining batter over crumble, smoothing top with a spatula. Sprinkle evenly with remaining crumble mixture. Bake at 350° for 30 minutes or until a wooden pick inserted in center comes out clean. Cool in pan on a wire rack for 15 minutes. Place a plate upside down on top of cake; invert onto plate. Place another plate upside down on top of cake; invert onto plate.

QUICK COFFEE CAKE

Fig 2.17: Quick Coffee Cake

Ingredients	Quantity
Sugar	225 gm
Refined flour	225 gm
Baking powder	2 tsp
Salt	¼ tsp
Butter	55gm
Egg	1
Milk	150 ml
Sugar for sprinkling	3 tsp
Cinnamon	1 ½ tsp

Method

1. Mix flour, sugar, baking powder and salt. 2. Rub in butter. 3. Mix into a batter with egg and milk. 4. Pour into greased rectangular pan measuring 18cm. 5. Sprinkle with 3 tsp sugar mixed with 1 tsp cinnamon. 6. Bake at 195C (375F approx.) for about 20 minutes.

Plum or Apple Kuchen

Arrange fruit on top of batter. Sprinkle with brown sugar and pour over an egg beaten with 75 ml milk or cream.

Streusel Coffee Cake

Mix 85 gm brown sugar. 2 tbsp flour. 3 tsp cinnamon, 115 gm melted butter and 55 gm chopped walnuts and sprinkle on batter before baking

Date & Walnut Gingerbread

https://www.cakeandcookierecipes.com/2012/11/20/date-walnut-gingerbread-cake-recipe/

Ingredients

- 110 g (4 oz) Baking Margarine or Unsalted Butter
- 175 g (6 oz) Golden Syrup
- 50 g (2 oz) Black Treacle
- 150 ml (1/4 pt) Milk
- 2 large eggs, beaten
- 225g (8 oz) plain flour
- 1 tsp mixed spice
- 2 tsp ground ginger
- 1 tsp bicarbonate of soda
- 110 g (4 oz) stoned dates
- 50g (2 oz) walnuts (chopped)

Fig 2.18: Date and walnut gingerbread cake

https://www.cakeandcookierecipes.com/2012/11/20/date-walnut-gingerbread-cake-recipe/

Date & Walnut Gingerbread Cake Recipe

- Grease and line a 2lb loaf tin, greasing the lining on both sides.
- Chop the dates and walnuts. Try to chop the dates individually so they don't all stick together.
- Pre-heat the oven to 150°C (300°F or gas mark 2 or 140°C fan oven).
- Melt the margarine, golden syrup and treacle together. You can do this in a saucepan on a low heat, or I just used the microwave. Be sure to stir the mixture regularly.
- Let the mixture cool for a few minutes, then mix in the milk.
- Add the beaten eggs and stir them in.
- Sift the flour, spices, and bicarbonate of soda into a separate bowl.
- Add around a fifth of the flour mix into the syrup mixture, and whisk well. When mixed in, add another fifth of the flour, then whisk that in. Continue until the flour is completely mixed in and you have a smooth mixture.
- Fold in (stir in a figure of 8 pattern) the chopped walnuts and two thirds of the chopped dates.
- Pour the mixture into the loaf tin.
- Carefully distribute the rest of the chopped dates on top of the mixture.
- Cook in the middle of the oven for 1½ hours.
- After cooking leave to cool completely before removing from the tin. Store in a tin.

Swedish Tea Ring

https://www.allrecipes.com/recipe/15452/swedish-tea-ring/

Fig 2.19: Swedish Tea Ring

https://www.bbcgoodfood.com/recipes/1269633/shortcrust-pastry-case

(Time 3 h 20 m, 24 servings, 83 cals)

Ingredients

For the Dough:1 cup milk1 egg, beaten1 tablespoon butter, room temperature3 tablespoons white sugar1/2 teaspoon salt3 1/4 cups bread flour3/4 teaspoon active dry yeast

For the Filling:2 tablespoons butter, softened2 teaspoons ground cinnamon3/4 cup packed brown sugar1/2 cup raisinsFor the Icing:1 cup confectioners' sugar, sifted1/2 teaspoon almond extract1 tablespoon milk, or as needed

Directions

Prep time : 45 m, Cook time: 20 m, Ready In: 3 h 20 m

- In a bread machine, put milk, egg, butter, sugar, salt, bread flour, and yeast in the order suggested by the manufacturer. Select the Dough cycle and press Start. When dough is mixed, transfer to a greased bowl; cover with plastic wrap and let rise until doubled, about 1 to 1 1/2 hours.
- Grease 2 baking sheets or line them with parchment paper; set aside.
- Divide dough in half. Roll each piece out into rectangles about 12x16 inches. Spread each dough rectangle with 1 tablespoon softened butter. In a small bowl, combine 2 teaspoons ground cinnamon, 3/4 cup light brown sugar, and 1/2 cup raisins.
- Sprinkle cinnamon mixture onto buttered dough. Roll them up jelly-roll fashion, along long side. Pinch edges to seal. Stretch and twist into rings, pinching ends to seal. Place them seam-side down onto prepared baking sheets. Using clean scissors, cut 2/3 way of the way through the loaf at about 1-inch intervals. Spread each cut slightly. you wish to
- [At this point, the dough can be refrigerated: cover dough with greased plastic wrap and refrigerate overnight. The next morning, let pastries come to room temperature for about half an hour before baking as directed in step 7.]
- Alternately, cover each ring with a clean towel or greased plastic wrap and let loaves rise until double, about 40 minutes.
- Arrange two oven racks so that both baking sheets will fit. Preheat oven to 350 degrees F (175 degrees C).

- Bake for 10 minutes in preheated; rotate baking sheets. Bake until rings are light brown and the filling is oozing and bubbling, about 10 minutes more.
- In a small mixing bowl, combine confectioners sugar, almond extract, and milk until icing is desired consistency. Drizzle icing over warm pastries.

Banana Tea Ring

Ingredients	Quantity
Margarine	75 gm
Sugar	50 gm
Brown Sugar	100 gm
Eggs (slightly beaten)	2
Vanilla	1tsp
Refined flour	220 gm
Baking powder	1 tsp
Bicarbonate of soda	¼ tsp
Salt	1 tsp
Mashed ripe bananas	200 gm
Buttermilk	60 ml

Chopped nuts (Peanuts and Cashew nuts) 50 gm

Glaze

Milk	2 tbsp
Icing sugar	160 gm
Vanilla	
Salt	a pinch

Method

1. Cream Margarine and sugar. 2. Blend in eggs and vanilla. 3. Sift together flour, baking powder, soda, and salt and add alternately with mashed bananas and buttermilk, mixing well each time. 4. Stir in nuts. 5. Pour into a greased 23 cm (about 9") ring mould. 6. Bake in a moderate oven at 175C (350 F approx.) for 30-35 minutes. Cool for 5 minutes. 7. Turn out of pan and glaze. Sprinkle with chopped nuts.

Glaze

Blend milk with sugar, mixing well. Stir in vanilla and salt.

CHECK YOUR PROGRESS

- Explain how light coffee cakes are prepared.
- Explain how quick coffee cakes are prepared.
- Explain how Streusel Coffee Cake are prepared.
- Explain how Date & Walnut Gingerbread are prepared.
- Explain how Swedish Tea Rings are prepared.
- Elaborate how the banana tea ring is prepared.

2.07 PASTRIES

SHORTCRUST PASTRY

Fig 2.20: Short crust pastry

https://www.bbcgoodfood.com/recipes/1269633/shortcrust-pastry-case

There are certain rules to remember: when making short crust Pastry.

The first and most important is that all the ingredients and the utensils should be as cool as possible. This keeps the fat hard, for if it becomes at all warm it will become very oily and thus make it difficult to rub into the flour: the result will be that the mixture will become heavy instead of being light and airy.

The second important point is that only a minimum amount of water should be added only just enough to make the pastry of a rollable consistency. Too much liquid invariable makes pastry tough.

The third point is that the oven must be hot for the first few minutes of baking, because the heat bursts the grains of flour which will absorb the melting fat. If the oven is too cool, the fat will ooze out of the pastry before there is sufficient heat for the grains to burst.

SHORTCRUST PASTRY

Ingredients	Quantity
Flour	115gm
Margarine	60gm
Salt	a pinch
Cold water	to mix

Method

Sieve flour with salt to aerate flour and lighten pastry Using finger-tips, rub in (fat) margarine very lightly, to breadcrumb texture. Mix in enough cold water (preferably iced in hot climates) to gently bind mixture and form into a smooth ball. Use as desired. Short crust pastry is baked at 425^0F or 218-220^0C.

JAM TARTS

Ingredients	Quantity
Refined flour	115 gm
Fat	60 gm
Baking powder	¼ tsp
Cold water	for mixing
Sugar (optional)	5 gm
Jam	55 gm

Method

1. Sieve flour and baking powder. 2. Rub in fat lightly with finger tips until it resemble breadcrumbs. 3. Add sugar if it is being used and mix. 4. Mix with cold water to a dough and then roll on a floured slab or board and cat as required. 5. Line patty tins with rolled-out dough and fill two-thirds with jam. 6. Bake in a hot oven at 205^0 C (about 400^0 F) for 15 minutes.

LEMON CURD TARTS

Follow recipe for jam tarts but bake pastry blind, pricking centres before baking. Fill three-quarters with lemon curd.

Fig 2.21: Lemon Curd Tarts

https://www.bettycrocker.com/recipes/lemon-curd-tarts/ccd0b107-59cd-474f-a51e-b7cd01bf6bab

DATE AND NUT TURNOVER

Short crust pastry with 115 gm refined flour.

1. Roll out pastry and cut into 6.5 cm (2 ½ “) squares. 2. Put in 2 teaspoonfuls of date and nut filling. 3. Wet sides of pastry with water. 4. Turn over diagonally and seal. 5. Brush over with sugar and water or beaten egg and bake at 195^0 C (375^0 F) for 25 minutes. 6. Sprinkle over with castor sugar.

Fig 2.22: Date turn over

http://www.christinamarsigliese.com/2015/01/soft-date-turnover-cookies.html

VEG MINCE PIES

https://www.wikihow.com/Make-Vegan-Mincemeat-Pies

Ingredients

- 100g, 4 oz currants
- 100g, 4 oz raisins
- 100g, 4 oz sultanas
- 50g, 2 oz cooking dates
- 50g, 2 oz candied peel
- 50g, 2 oz glacé (glazed) cherries
- 50g, 2 oz flaked almonds
- 1 ripe banana, peeled
- 4 tablespoons brandy or whiskey (substitute juice for straight-edge vegan)
- 1/2 teaspoon each ground ginger, freshly grated nutmeg, ground mixed spice
- Caster (superfine) sugar, to serve; icing sugar (confectioners sugar) is also suitable to sprinkle

Pastry:

- 750g, 1 1/2 lb plain (all-purpose) wholewheat flour
- Pinch of salt
- 350g vegetable margarine (check it has no dairy and animal-derived content)
- 6 tablespoons cold water

Directions:
1. Make the mincemeat. Place all of the ingredients apart from the caster (superfine) sugar into the mixing bowl. If you don't want to mix by hand, use a food processor, which will make a finer mincemeat.
2. Preheat the oven to 200ºC or 400ºF. Prepare the pie or muffin tin (pan) by greasing or flouring each hole.
3. Make the pie dough. Sift the flour and salt into the other mixing bowl. Add the margarine and using your fingertips, gently and quickly rub the fat into the flour. The mix is ready when it resembles breadcrumbs.

Fig 2.23: Mince pies can be made with meat or using vegetables

https://www.wikihow.com/Make-Vegan-Mincemeat-Pies

4. Pour in the cold water. Press the mix together to form a dough.
5. Remove the dough from the bowl and place on a floured surface. Roll the dough out fairly thinly. Cut 12 centimeter (4.7 in) (4 3/4") circles and 10 centimeter (3.9 in) (4") circles from the dough with round dough or biscuit (cookie) cutters.
6. Press a larger circle into the pie or muffin tin (pan). Place a heaped teaspoon of mincemeat into the middle of the dough. Cover with a smaller circle. Repeat until all circles have been turned into mincemeat pies.
7. Press fork tines around the edges of each pie to seal closed. Stab the fork in the middle of the pie to create steam escape holes.
Alternatively, simply pinch the edges together and make one small neat hole in the middle of each pie.
8. Place the pies into the preheated oven. Bake for around 10 minutes or until the pies start to brown lightly.
9. Remove from the oven. Place the entire tin (pan) on the wire cooling rack and leave there to cool.
Image titled Make Vegan Mincemeat Pies Step 10
10. Sprinkle with the sugar. Serve warm or cold.

CUSTARD TARTS (A)

Shortcuts party with 115 gm flour.

Ingredients	Quantity
Filling	
Milk	300ml

Fig 2.24: Custard tart

https://www.bbcgoodfood.com/recipes/1583638/custard-tart

Egg (large)	1
Sugar	115gm
Nutmeg	1 pinch

Method

1. Roll out pastry. Cut with large cutter and line patty tins. Prick. 2. Make custard mixture with beaten eggs. Sugar and milk. 3 Full pastry three-quarters with custard. Sprinkle top with grated nutmeg. 4. Bake at 195^0 C (about 375^0 F) for 20-25 minutes.

PINEAPPLE TARTLETS

Fig 2.25: Rose Pinapple tart

https://esjoie.wordpress.com/2010/01/20/how-to-do-rose-pineapple-tarts/

Ingredients	Quantity
Pastry	
Refined flour	55 gm
Butter	30 gm
Sugar	30gm
Corn flour	55 gm
Milk	2 tsp
Egg yolk	½
Filling.	
Any yellow jam	30 gm
Biscuit crumbs	45 gm
Ingredients	10
Egg	1 white and ½ yolk
Pineapple slices	55 gm
Pineapple juice	1 tsp
Angelica	a few pieces
Butter	55 gm
Sugar	30 gm

Method

1. Sieve flour and corn flour. Rub in butter and add sugar. 2. Separate white and yolk of eggs. 3. Beat half the yolk and mix with 2 teaspoons milk. 4. Add milk and egg to dough. Mix well. 5. Roll out cut to fit 10 patty tins. 6. Leave to stand until filling is ready.

Filling

7. Crush biscuit crumbs. 8. Cream butter and sugar till light and fluffy Add pineapple juice. 9. Whisk rest of yolk and white of egg. Stir into biscuit crumbs. 10. Creamed mixture to get a dropping consistency. 11. Put a little filling into each pastry case and bake in a hot oven to cool. 250^0 C (about 400^0F) for 15 minutes.. 12. Remove from tins and allow to cool. 13. Drain pineapple slices. Split if too thick and cut into 4 wedges for each tart. 14. Brush some hot jam on each tart. 15. Arrange pineapple wedges and Bruch over with jam, 16. Garnish centre of each tart with small pieces of angelica.

CHECK YOUR PROGRESS

- Explain how shortcrust pastries are prepared.
- Explain how **jam tarts** are prepared.
- Explain how lemon curd tarts are prepared.
- Explain how date and nut turnover are prepared.
- Explain how veg mince pies urnover are prepared.
- Explain how custard tarts are prepared.
- Explain how pineapple tartlets are prepared.

2.08 BREAD MAKING

Characteristics of a good loaf

Fig 2.26: Bread loaf

Whether you're a bread fiend or someone who just enjoys a good sandwich, there's no reason you shouldn't be able to tell the difference between a loaf of bread and a truly great loaf of bread. You might be wondering how one loaf of bread differs from any other loaf of bread, but any quality bakery will be able to tell you that there certainly is a difference.

While you might not be employed at a quality bakery, it's absolutely possible for you to be able to quality-check bread like the best of them. Below, we've crafted a guide that describes five of the most important qualities you should be looking for in a great loaf of bread.

Crust

A bread without a nice, crispy crust isn't a bread that's worth your time. Artisan bread should have a variety of hues in its crust, ranging from golden brown to a light golden color. This ensures you'll have the best tasting experience.

Air Pockets

Wheat flour is commonly used to make bread because it holds two gluten-forming proteins, but some bakers over-work their dough and end up with a bread that's far too dense. What you should be looking for in fresh bread is a variety of bubble sizes.

Glossy Interior

Not every bread should look wet on the inside, but a quality bread will have a slightly glossy finish on the inside. In addition, it will spring back when you press your finger into it.

Flavor

If a bread bakery claims to make a good flavored bread, you should be able to smell that flavor before you even bite into a piece. Any decent bread should have a good flavor; it shouldn't taste like eating air!

Finish

While a loaf of bread doesn't have to look gorgeous to be tasty, a pretty bread certainly makes eating all the more enticing. A good finish or glaze, especially on sweet breads, should be an indicator of quality.

Above all else, make sure you like the bread you're eating. A quality loaf of bread means nothing if you don't enjoy it! With any luck, these tips will help you pick out the best of the best for your palate.

We may summarise the features of a good loaf as follows:

1. **Shape: Well-** proportioned with an evenly- rounded top.
2. **Crust :** uniformly brown but with a slightly darker top; about 0.35 cm (about 1/3 ") thick; tender and smooth; not split or bulging.
3. **Volume:** light in weight proportion to size.
4. **Texture**: tender elastic crumbs; free from dryness or doughtiness.
5. **Grain**: small cells evenly distributed; thin cell walls.
6. **Colour of crumbs**: depends on ingredients used free from dork streaks.
7. **Flavour:** Free from sourness or bitterness.
8. **Aroma:** must be free of musty, foreign or sharp odours.

Faults in Bread and their Causes

Poorly shaped loaf

1. Inexperience in handling. 2. Too much flour or not enough flour. 3. Dough too light before baking. 4. Oven not hot enough or heat uneven.

Coarse Grain

1. Dough not kneaded enough. 2. Allowed to rise too much Before baking. 3. Oven temperature too low.

Streaks

1. Dough allowed to dry on top during rising period. 2. Dough not kneaded enough. 3. Dry flour folded into loaves during shaping. Dough too heavily greased on top during rising.

Crumbly

1. Too much flour. 2. Not enough kneading. 3. Allowed to rise too much before baking.

Crust splitting on top or said

1. Oven too hot or oven heat uneven. 2. Loaves placed too closely together during baking.

Soggy or heavy

1. Too much flour. 2. Insufficient rising or baking.3. Poor yeast or poor flour.

Off – flavor

1. Old yeast. 2. Dough allowed to rise for too long. 3. Too High temperature during rising. 4. Too slow or incomplete baking. Insufficient scalding of milk**.**

Important steps

Scald fluid milk. Milk, even though pasteurized, needs to be scalded. The bacteria left in the milk will grow during the rising of the dough And may cause bread to become off-flavour. The best scalding temperature For milk is 85^0 C- 90.5^0 (about 185^0 F- 195^0 F). Scalding milk at this Temperature range kills all the bacteria and the bread will have a better Volume and texture than if the milk were scalded at a lower temperature.

Add yeast when milk mixture is lukewarm . Yeast consists of tiny plants Which are killed by liquid that is too warm? Therefore, and the softened Yeast only when the milk mixture is at 35^0 C (about ^{F}) 95^0 F)or lower. If You have no thermometer; put a drop of milk on the inside of your wrist; If it feels neither warm nor cold, it is lukewarm.
Rest period. By letting the dough rest for about 10 minutes before Kneading, the dough tightens and requires less flour. Before shaping the Dough into loaves or rolls, allow it to rest another 10 minutes for easier Handling.
Kneading thorough kneading mixes the flour and other ingredients. It
Develops the gluten which helps to hold in the gas formed by yeast.

Rising period. The rising period may determine the quality of your bread. Allow the dough to rise at between 24^0 C and 29.4^0 (about 75^0 F and 85^0 F). At temperature lower than 24^0 C (about 75^0F) rising will be prolonged. At temperature above 29^0C (about 85^0F) an off- flavour may develop.

Good bread can be made when you allow the dough to rise only Once before it is shaped. A finer textured bread may result with a second rising.

Baking temperature. Baking sets the gluten and stops **gas forming. The** Best temperature for baking bread in a metal pan is 205^0C (about 400^0F).More thiamine (vitamin B1) is preserved at this temperature than at Temperature above or below 205^0 C (about 400^0F).

Bread is done when it shrinks from the pan or sounds hollow when You tap the top of the loaf with your hand. Remove it from the pan Immediately. To prevent steaming of the crust, place the loaf on a cooling Rack or across the top of a pan so air can circulate freely around it.

Storage of bread. Allow the bread to cool thoroughly then place it in a Clean, well-aired, covered container.

Ingredients

Flour. Generally, refined flour is used to make bread. It contains enough Gluten to make the framework for the loaf. Bread flour, which contains Stronger gluten makes excellent bread. Whole meal flour can also be used to make certain kinds of bread.

Sugar. Sugar furnishes food for the yeast and aids in browning the loaf.

Salt. Salt improves flavour and texture. It controls yeast action so dough Dose not rises too quickly. Too much salt slows down rising.

Yeast. Yeast is the leavening agent in the bread. When the tiny yeast Plants feed on sugar. They produce carbon dioxide gas which makes the Dough rise.

Yeast comes in two forms, compressed and granular. The compressed Yeast cakes are moist and must be kept under refrigeration or frozen. Granular yeast will keep longer if stored in a refrigerator.

Fat. Fat used in bread could be lard, a hydrogenated fat, butter, Margarine or cooking oil. The fat used in bread increases tenderness and Volume, improves texture, flavour, and keeping quality, it also Contributes to the golden- brown colour of the crust.

Liquid.liquid used for making bread could be milk or water. Different Kinds of milk, such as fluid milk, buttermilk, evaporated milk, or dry Milk, may be used. Milk in any form increases the food value of the bread and improves its keeping quality. Bread made water has a nutty Flavour and a crisper crust than bread made with milk. Water in which Potatoes are cooked can also be used.

Other ingredients. Other ingredients that could be used in the bread are eggs, fruit Nuts and spices.

Bread rolls (no –time dough)

Ingredients	16
Refined flour	450 gm
Sugar	1tps
Fat	30 gm
Lukewarm water	300 ml
Salt	1 tsp
Dry yeast	2 ½ tsp (7 ½ -10 gm)

Fig 2.27: Hot dog buns prepared using no time do method

http://www.beachloverkitchen.com/2012/07/hot-dog-bunno-time-dough-method-by-alex.html

Method

1. Mix yeast in 170 ml lukewarm water and keep aside. 2. Dissolve salt And sugar in remaining water and mix roughly with sieved flour. 3. Add Yeast ferment and mix to smooth, soft dough. 4. Knead in creamed fat And divide dough into 16 portions. 5. Make round balls and shape them 6. Place rolls on a greased baking sheet and keep under a wet cloth until They are double in size. (About 45 minutes). 7. Sprinkle a little water on Rolls before baking. 8. Bake at 230^0C (about 450^0F0 for about 10-15 Minutes. 9. Remove and brush over with melted fat.

Bread rolls (Straight method)

Ingredients	Quantity
Refined flour	450 gm
Salt	1 tsp
Dry yeast	1 tsp (5 gm)
Sugar	1 tsp
Fat	30 gm
Lukewarm water	300 ml (about)

Method

1. Mix yeast in 120 ml lukewarm water and keep aside. 2. Dissolve salt And sugar in remaining water. 3. Mix roughly with sieved flour. 4. Add Yeast ferment and knead to smooth, soft dough. 5. Cream fat and knead into dough. 6. Keep dough in a warm place for 1 ½ hrs. 7. Punch dough And keep again for 55 minutes. 8. Divide dough into 16 portions. 9. Make Round balls and shape them. 10. Place them on a greased tray under a Wet cloth. 11. Sprinkle water on rolls before baking. 12. Bake at 230^0 C (About 450^0F) for about 10-15 minutes.

COVERING FOR BREAD ROLLS

Ingredients	Quantity
Refined flour	285 gm
Sugar	170 gm
Butter	115 gm
Vanilla	a few drops
Water (about)	120 ml
Yellow food colour	

Method

1. Cream butter and sugar. 2. Beat in colour and water. 3. Knead in Sifted flour. 4. Divide into 50 portions. Flatten each portion in the palm of the hand leaving the centre thicker. 5. Keep a round ball of bread roll Dough in the centre and gently cover with prepared covering. 6. Mark And sprinkle sugar. 7. Leave for final proving. 8. Bake at 230^0C (About 450^0F) for about 10 minutes.

Fig 2.28: Various types of covering can be given to bread rolls

https://in.pinterest.com/pin/442408363388068066/

SAVOURY PICNIC ROLLS

Fig 2.29: Picnic spring roll

https://www.everydaydiabeticrecipes.com/Appetizers/Spring-Picnic-Roll-Ups

Fat	30 gm
Active dry yeast	
For straight dough	1 tsp
For no – time dough	2 ¼ tsp
Lukewarm water	295-300 ml (about)
For filling	
Green peas	120 gm
Onions	60 gm
Potatoes	120 gm
Green chillies	1
Ginger	a small piece
Lime juice	½ lime
Salt	to taste
Turmeric	a pinch
Chilli powder	1 tsp

Method

1. Follow method for straight dough or no-time dough as desired. 2. After Making round balls flatten them leaving them thicker in the centre. 3. Put in filling and fold. Shape to form a round ball again. 4. Turn Upside down and place on a greased tray. 5. Continue as for bread rolls.

Bread (straight dough method)

Ingredients	Quantity
Refined flour	1.5 kg
Dried yeast or	15 gm
Compressed yeast	30 gm
Sugar	30 gm
Salt	30 gm
Fat	30 gm

Water up to 55 % of flour or more depending on quality of flour.

Method

1. Mix yeast in 300 ml lukewarm water and keep aside. Add a teaspoon Of sugar if yeast is weak. 2. Dissolve salt and sugar in remaining water And strain (water up to 55%). 3. Sieve flour. 4. Mix water in which salt And sugar has been dissolved. With flour roughly. 5. Add yeast mixture To flour and knead to smooth, soft dough adding more water if Necessary. 6. Cream fat and knead into dough. 7. Keep dough in dry Prove 27^0C (about 82^0F approx.) for 1 ½ hours. 8. Punch dough and Again keep in dry prover for 55 minutes more at 27^0C (about 82^0F Approx.) 9. Divide and scale dough and from into balls. 10. Keep these Ball under a dry cloth at room temperature for about 15-20 minutes. 11. Roll and mould either by machine or by hand. 12. Pan in greased Bread tins. 13. Keep tins in a wet prover at 35^0C (about 95^0F) or under A wet cloth for about 1 hour or till it fills the tin. 14. Spray water on Surface of bread before putting it into oven. 15. Inject steam into oven Or put a pan with hot water inside. 16. Bake bread at 205^0C (about 400^0F) for 30-35 minutes. 17. Remove and brush over with oil.

   N.B. If a dry prover is not available allow dough to ferment till it doubles
   In volume.

Fig 2.30: Straight dough method used fo prepare bread roll

https://in.pinterest.com/pin/451626668866141071/?lp=true

Bread (normal straight method)

Fig 2.31: Bread can be prepared suing straight dowgh method

https://www.youtube.com/watch?v=5EB0WrK9auQ

Ingredients	Quantity
Refined flour	1.5 kg
Dry yeast	15 gm
Sugar	30 gm
Salt	20 gm
Shortening	30 gm

Water up to 55% of flour or more depending on quality of flour
(Add 7 parts in the beginning and one part after 3 hours)

Method

1. Mix yeast and 1 tsp sugar in 180 ml of water and keep it aside until it starts working. 2. Sieve flour. 3. Dissolve salt and sugar in 600 ml water and mix that water into the flour roughly. 4. Add yeast ferment and knead. 5. Cream shortening and add to mixture. Knead to a smooth dough. 6. Keep dough in a dry prover at 27^0C (about 82^0F) for 3 hours. 7. Divide dough into small pieces and add remaining water. Knead and Keep in dry prover for another 55 minutes at 27^0C (about 82^0F) 8. Divide, roll and keep under a cloth for 15 minutes. 9. Roll, mould and Pan dough. 10. Wet prover, 35^0C (about 95^0F) for 55 minutes or keep Under a wet cloth. 11. Spray water on bread before putting it into oven. 12. Inject steam into oven or put a pan with hot water inside. 13. Bake At 205^0C (about 400^0F) for 30 minutes. 14. Remove and brush over with Oil.

Bread (100% sponge method)

Fig 2.32: Sponge (pre-ferment) before mixing rest of dough

https://bakerbettie.com/sponge-method-for-bread/

Ingredients	quantity
Sponge:	
Refined flour	1.5 kg
Dry yeast	15 gm
Shortening	30 gm
Water	750 ml
Dough:	
Water	150 ml
Salt	30 gm
Sugar	30 gm

N.B. water up to 55% of flour or more depending on quality of flour
Proportion 5.1

Method

1. Mix yeast in 180ml lukewarm water, add 1 teaspoon sugar and keep aside till it starts working (about 20-25 minutes). 2. Sieve flour, add Remaining water and mix roughly. 3. Add yeast ferment and knead well.

   4. Add shortening and knead well till smooth. 5. Keep in a dry prover For 3 hours at 27^0C (about 82^0F). 6. Dissolve salt and sugar in remaining 150 ml of lukewarm water. 7. Break sponge. 8. Add solution sponge and Knead to a smooth dough. 9. Keep in dry prover for 30-40 minutes at 27^0C (about 82^0F). 10. Divide and keep for 15 minutes. 11. Roll, pan and Keep in a wet prover for 55 minutes. 12. Inject steam into oven or put a Pan with hot water on oven. 13. Bake at 205^0C (about 40^0F) for 30 Minutes. 14. Brush with oil after baking.

WHOLEWHEAT BREAD

Fig 2.33: Whole Wheat Bread

https://www.vegrecipesofindia.com/100-whole-wheat-bread-atta-bread/

Ingredients	quantity
Milk	425 ml
Dry yeast	15 gm
Lukewarm water	60 ml
Honey or molasses	85 gm
Salt	1 tbsp
Fat	55 gm
Whole wheat flour	600 gm

Method

1. Scald milk at 87.8^{0}C (about 190^{0}F). 2. Mix yeast in lukewarm water at 35^{0}C (about 95^{0}F) for 5-10 minutes. 3. Measure honey, salt and fat into a mixing bowl. 4. Add hot milk and stir until sugar and salt have dissolved and fat melted. 5. When milk mixture is lukewarm add yeast ferment. 6. Add 330 gm (3 cups) whole wheat flour and beat well (75 strokes). 7. Add remaining whole wheat flour, ½ cup at a time until dough is stiff. The rest of the flour can be used on the board during kneading. 8. Follow steps 8 through 21 of Enriched white Bread.

GARLIC BREAD

Fig 2.34: Garlic Bread

https://www.foodnetwork.com/recipes/rachael-ray/garlic-bread-recipe-1951706

Crush a clove of garlic with ½ a level teaspoon salt and 55 gm butter. Slice a French loaf from end to end at 1.5 cm (about 2) intervals without cutting right though. Spread garlic flavoured butter between slices and over outside of loaf. Wrap in aluminium foil and place in a hot oven for 5-10 minutes till crust is crisp. Serve while still warm.

GARLIC AND CHEESSE BREAD

Ingredients	quantity
Flour	500 gm
Sugar	10 gm
Salt	10 gm
Yeast (compressed)	10 gm
Fat	10 gm
Water	300 ml
Garlic	2 pods
Cheese	60 gm

Method

1. Mix yeast in 150 ml lukewarm water and keep aside. 2. Dissolve salt and sugar in remaining water.3. sieve flour. Mix the water in which salt and sugar have been dissolved roughly with flour. 4. Add yeast mixture to flour and knead to a smooth, soft dough adding more water if necessary. 5. Cream fat and knead into dough. 6. Keep dough aside for 1 ½ he. To ferment. 7. Punch dough and add crushed garlic and grated Cheese. 8. Mix well and let it rest it rest for 10-15 minutes. 9. Mould dough and pan in a greased bread tin. 10. Keep tin in wet prover for 45 minutes. 11. Spray water on bread before putting it into oven. 12. Bake at 200^0C (about 400^0F) for 30-35 minutes. 13. Remove and brush over With oil.

Fig 2.35: Garlic and Cheese bread

https://www.inspiredtaste.net/17822/basil-and-cheese-garlic-bread-recipe/

KULCHA

INGREDIENTS	QUANTITY
Refined flour	450 gm
Eggs	2
Yeast	1 tsp
Curds	115 gm
Water	to mix
Salt	1 ½ tsp

Method

1. Mix yeast with water and keep aside. 2. Mix salt with curds and knead In sieved flour. 3. Add yeast ferment and beaten egg and knead to a Smooth and hard dough. 4. Keep dough aside for 1 hour, punch, and keep For another hour. 5. Divide dough into 5 pieces, make round balls and Keep aside again for 10 minutes. 6. Roll, leaving a mound in the centre And place on a tray. 7. Keep in a wet prover for about 35 minutes. 8. mark with a knife and brush with beaten egg before baking. 9. Bake at 204^0C (about 400^0F) for about 15 minutes. 10. Brush with fat and Bake for about 3 minutes more.

Fig 2.36:Kulcha

https://www.vegrecipesofindia.com/kulcha/

SWEET DOUGH (lean)

Ingredients	quantity
Yeast	30 gm
Refined flour	1 kg
Sugar	10 gm
Salt	20 gm
Shortening	110 gm
Skimmed milk powder	60 gm
Grated lemon rind	½ tsp

Method

1. Mix yeast with 300 ml lukewarm water and set aside. Cream well. Sift skimmed milk powder with flour. 3. Dissolve salt and sugar in 300 ml lukewarm water. Strain. Add grated lemon rind. 4. Mix sugar And salt solution roughly with flour and skimmed milk powder. 5. Add Yeast ferment roughly. 6. Add 120 ml more lukewarm water and knead Well. (Dough should be water then for bread). 7. Cream fat well and Gradually mix it with dough, kneading till dough is smooth. 8. Dust with Flour and shape into a smooth ball. 9. Grease a bowl. Put in dough. Turn Over to see that both sides of dough are greased. Set aside to prover for About 1 hour till it doubles in bulk. 10. Remove it to a slab dusted with Flour (the dough should be soft and on the wet side). 11. Cut into portions And shape as desired. 12. Bake at 250^0C (about 450^0F) till done. Baking time will vary with size of product. The smaller ones take approximately 10-12 minutes and the larger ones about 20 minutes. 13. Remove. Brush Over with milk and sugar.

CHECK YOUR PROGRESS

- Elaborate the features of a good loaf.
- Discuss the faults in breads and their causes.
- Elaborate the important steps in bread making.
- Explain the various ingredients used in making breads.
- Discuss the preparation of bread rolls using no time dough.
- Discuss the preparation of bread rolls using straight methods.
- Discuss the preparation of coverings for bread rolls.
- Discuss the preparation of savory picnic rolls.
- Discuss the preparation of bread rolls using no time dough.
- Discuss the preparation of bread using straight dough methods.
- Discuss the preparation of bread using mormal straight method.
- Discuss the preparation of bread using spong method.
- Discuss the preparation of whole wheat bread using no time dough.
- Discuss the preparation of garlic bread.
- Discuss the preparation of garlic and cheese breads.
- Discuss the preparation of kulcha.
- Discuss the preparation of sweet dough.

2.09 END QUESTIONS

The following questions should help you prepare for the End Examinations. These questions are for 5 marks each and should take you 11 minutes under examination conditions.

1. Elabate various ways to work with bakery products.
2. Explain how one can tell when a cake is cooked.
3. Elaborate the process of measuring syrups using tablespoons.
4. Explain how vanilla buns are prepared.
5. Explain how cream corks are prepared.
6. Explain how mushroom cakes are prepared.
7. Explain how sponge cakes are prepared using basic method.
8. Explain how sponge cakes are prepared using milk powder.
9. Explain how fatless sponge cakes are prepared.
10. Explain how swiss rolls are prepared.
11. Explain how sponge fruit flans are prepared.
12. Explain how Russian sandwitch are prepared.
13. Explain how **check cake**s are prepared.
14. Explain how plain fruit cakes are prepared using rub in method.
15. Explain how cherry cakes are prepared.
16. Explain how fruit cakes are prepared using creaming method.
17. Explain how love cakes are prepared.
18. Explain how Christmas cakes are prepared.
19. Explain how light coffee cakes are prepared.
20. Explain how quick coffee cakes are prepared.
21. Explain how Streusel Coffee Cake are prepared.
22. Explain how Date & Walnut Gingerbread are prepared.
23. Explain how Swedish Tea Rings are prepared.
24. Explain how shortcrust pastries are prepared.
25. Explain how **jam tarts** are prepared.
26. Explain how lemon curd tarts are prepared.
27. Explain how date and nut turnover are prepared.
28. Explain how veg mince pies urnover are prepared.
29. Explain how custard tarts are prepared.
30. Explain how pineapple tartlets are prepared.
31. Elaborate the features of a good loaf.
32. Discuss the faults in breads and their causes.
33. Elaborate the important steps in bread making.
34. Explain the various ingredients used in making breads.
35. Discuss the preparation of bread rolls using no time dough.
36. Discuss the preparation of bread rolls using straight methods.
37. Discuss the preparation of coverings for bread rolls.
38. Discuss the preparation of savory picnic rolls.
39. Discuss the preparation of bread rolls using no time dough.
40. Discuss the preparation of bread using straight dough methods.
41. Discuss the preparation of bread using mormal straight method.
42. Discuss the preparation of bread using spong method.
43. Discuss the preparation of whole wheat bread using no time dough.
44. Discuss the preparation of garlic bread.

45. Discuss the preparation of garlic and cheese breads.
46. Discuss the preparation of kulcha.
47. Discuss the preparation of sweet dough.

2.10 REFERENCES

1. https://firstlookthencook.com/tag/light-coffee-cake/
2. https://www.cakeandcookierecipes.com/2012/11/20/date-walnut-gingerbread-cake-recipe/
3. https://www.allrecipes.com/recipe/15452/swedish-tea-ring/
4. https://www.vegrecipesofindia.com/kulcha/
5. https://www.inspiredtaste.net/17822/basil-and-cheese-garlic-bread-recipe/
6. https://bakerbettie.com/sponge-method-for-bread/
7. https://www.vegrecipesofindia.com/100-whole-wheat-bread-atta-bread/
8. https://www.foodnetwork.com/recipes/rachael-ray/garlic-bread-recipe-1951706
9. https://www.everydaydiabeticrecipes.com/Appetizers/Spring-Picnic-Roll-Ups
10. https://www.youtube.com/watch?v=5EB0WrK9auQ
11. http://www.beachloverkitchen.com/2012/07/hot-dog-bunno-time-dough-method-by-alex.html
12. https://www.wikihow.com/Make-Vegan-Mincemeat-Pies
13. https://www.bbcgoodfood.com/recipes/1583638/custard-tart
14. https://esjoie.wordpress.com/2010/01/20/how-to-do-rose-pineapple-tarts/
15. https://www.bbcgoodfood.com/recipes/1269633/shortcrust-pastry-case
16. https://www.bettycrocker.com/recipes/lemon-curd-tarts/ccd0b107-59cd-474f-a51e-b7cd01bf6bab
17. http://www.christinamarsigliese.com/2015/01/soft-date-turnover-cookies.html
18. https://firstlookthencook.com/tag/light-coffee-cake/
19. https://www.cakeandcookierecipes.com/2012/11/20/date-walnut-gingerbread-cake-recipe/
20. http://www.joyofbaking.com/LightFruitCakeRecipe.html
21. https://glutenfreescdandveggie.blogspot.com/2013/12/vegan-gluten-free-christmas-cake-gf.html
22. https://recipesindemand.blogspot.com/2011/03/check-cake-by-chef-shireen-anwar.html
23. https://makebakecake.weebly.com/cake-making-methods.html
24. https://www.bbcgoodfood.com/recipes/1838/chocolate-dipped-cherry-cake
25. http://www.ijy.cc/2017/01/fatless-sponge.html
26. https://www.deliciousmagazine.co.uk/recipes/swiss-roll/
27. https://www.quick-german-recipes.com/fruit-flan-recipe.html
28. http://www.scandikitchen.co.uk/vanilla-buns-six-ways/
29. https://www.bbcgoodfood.com/recipes/1218636/-homemade-sponge-cake-
30. http://vegetarian-planet.blogspot.com/2012/01/eggless-milkpowder-cake.html
31. Thangam E Philip, “Modern Cookery” Volume II, Sixth Edition, Orient Blackswan, Delhi, 2010

UNIT 3 : INTRODUCTION TO CONFECTIONERY

3.00 BEFORE WE BEGIN

This is the third Unit of the course. We have seen in previous two Units something about bakery. The first Unit was about bakery and bakery products. The second Unit was about preparing bakery items.

Now we head to confectionery. Confectioneries are products which are carbohydrate based. There are three variety of confectionery: floor based (called baker's confectionery), sugar based (called sugar confectionery) and fruit confectionery. In this unit we will study the basics of confectionery. We will also study the importance, description and history of the various confectionery products. To avoid duplication, I have not considered the baker's confectionery items. We have already studied them under bakery. We will be studying how to prepare confectionery products in the next Unit.

3.01 UNIT OBJECTIVES

After studying this unit you will be able to

- Describe the basic concept of confectionery
- Discuss the types of confectionery
- Describe the history of confectionery
- Discuss the various sweetening agents used in confectionery
- Discuss the concept of baker's confectionery
- Describe the various baker's confections.
- Discuss the various types of cakes.
- Describe the various types of pastries.
- Discuss the concept of sugar confectionery.
- Discuss how confectioney items are classified.
- Describe the various types of sugar confections.
- Discuss the storage and shell life of confections.
- Discuss the cultural roll of confectionery items.
- Describe the nutrional value of confections.
- Describe the risk involved in use of confections.
- Explain the concepts in candy making.
- Elaborate the histry of candies.
- Explain the nature of hard candy.
- Elaborate the importance of sugar concentration on texture of candy.
- Explain the various soft candy types.
- Elaborate the concept of cotton candy.
- Explain the nature of mashmallows.
- Explain the concept of chocolatiering.
- Elaborate the various tools and machinery used in making candy.
- Describe the concept of toffee.
- Discuss the process of creation of toffee.
- Describe the variations and applications of toffee.
- Explain the concept of icecream.

- Explain how ice creams are produced.
- Elaborate the retail sale of ice cream.
- Explain the various specialized jobs in ice cream industry.
- Elaborate the ingredients and standard quality definitions in ice cream.
- Explain the various physical properties of ice cream.
- Elaborate the concept of Ostwald ripening.
- Explain the various types of ice creams around the world.
- Elaborate the concept of ice cream cone.
- Explain the nature of some frozen desserts.
- Elaborate the use of cryogenics in ice cream.
- Describe the concept of chikki.
- Discss the ingredients used in making chikkis.
- Describe the process of preparation of chikkis.
- Explain the concept of dragée.
- Elaborate the use of dragée.
- Explain the concept of Jordan almonds.
- Elaborate the concept of panned chocolate.
- Explain the concept of medicinal dragée.
- Explain the metallic decorative balls.
- Discuss the concept of chewing gum.
- Describe the history of chewing gum.
- Discuss the nature of gum base.
- Describe the manufacturing process of chewing gum.
- Discuss the quality and safety of chewing gum.
- Describe the physical and chemical charecteristics of chewing gum.
- Discuss the bubble blowing capability of a chewing gum.
- Describe the chewiness of a chewing gum.
- Describe the stickiness of a chewing gum.
- Describe the flavor release process of a chewing gum.
- Describe the cooling sensation offered by a chewing gum.
- Describe the health effects of a chewing gum.
- Describe the effect of consuming a chewing gum on brain functions.
- Describe the effect of consuming a chewing gum on dental health.
- Describe the effect of consuming a chewing gum on post-operative process.
- Describe the effect of consuming a chewing gum on treatment of gastroesophageal reflux disease.
- Explain the various south Asian sweets.
- Elaborate the history of south Asian sweets.
- Explain the variety of South Asian sweets.

3.02 CONFECTIONERY

https://en.wikipedia.org/wiki/Confectionery

Confectionery is the art of making confections, which are food items that are rich in sugar and carbohydrates. Exact definitions are difficult. In general, though, confectionery is divided into two broad and somewhat overlapping categories, bakers' confections and sugar confections.

Bakers' confectionery, also called flour confections, includes principally sweet pastries, cakes, and similar baked goods.

Fig 3.01: This Kransekake is a traditional Scandinavian baker's confection.
https://commons.wikimedia.org/wiki/File:Krokan.jpg#/media/File:Krokan.jpg

Sugar confectionery includes candies (sweets in British English), candied nuts, chocolates, chewing gum, bubble gum, pastillage, and other confections that are made primarily of sugar. In some cases, chocolate confections (confections made of chocolate) are treated as a separate category, as are sugar-free versions of sugar confections. The words candy (US and Canada), sweets (UK and Ireland), and lollies (Australia and New Zealand) are common words for the most common varieties of sugar confectionery.

The confectionery industry also includes specialized training schools and extensive historical records. Traditional confectionery goes back to ancient times and continued to be eaten through the Middle Ages into the modern era.

History

Before sugar was readily available in the ancient western world, confectionery was based on honey. Honey was used in Ancient China, Middle East, Egypt, Greece and the Roman Empire to coat fruits and flowers to preserve them or to create sweetmeats. Between the 6th and 4th centuries BC, the Persians, followed by the Greeks, made contact with India and its "reeds that produce honey without bees". They adopted and then spread sugar and sugarcane agriculture. Sugarcane is indigenous to tropical South and Southeast Asia.

In the early history of sugar usage in Europe, it was initially the apothecary who had the most important role in the production of sugar-based preparations. Medieval European physicians learned the medicinal uses of the material from the Arabs and Byzantine Greeks. One Middle Eastern remedy for rheums and fevers were little, twisted sticks of pulled sugar called in Arabic al fänäd or al pänäd. These became known in England as alphenics, or more commonly as penidia, penids, pennet or pan sugar. They were the precursors of barley sugar and modern cough drops. In 1390, the Earl of Derby paid "two shillings for two pounds of penydes."

Fig 3.02: Jordan almonds. Sugar-coated nuts or spices for non-medicinal purposes marked the beginning of confectionery in late medieval England.
https://commons.wikimedia.org/wiki/File:La-Pone-Jordan-Almonds.jpg#/media/File:La-Pone-Jordan-Almonds.jpg

Jordan almonds. Sugar-coated nuts or spices for non-medicinal purposes marked the beginning of confectionery in late medieval England.

As the non-medicinal applications of sugar developed, the comfitmaker, or confectioner gradually came into being as a separate trade. In the late medieval period the words confyt, comfect or cumfitt were generic terms for all kinds of sweetmeats made from fruits, roots, or flowers preserved with sugar. By the 16th century, a cumfit was more specifically a seed, nut or small piece of spice enclosed in a round or ovoid mass of sugar. The production of comfits was a core skill of the early confectioner, who was known more commonly in 16th and 17th century England as a comfitmaker. Reflecting their original medicinal purpose, however, comfits were also produced by apothecaries and directions on how to make them appear in dispensatories as well as cookery texts. An early medieval Latin name for an apothecary was confectionarius, and it was in this sort of sugar work that the activities of the two trades overlapped and that the word "confectionery" originated.

Sweetening agents

Confections are defined by the presence of sweeteners. These are usually sugars, but it is possible to buy sugar-free candies, such as sugar-free peppermints. The most common sweetener for home cooking is table sugar, which is chemically a disaccharide containing both glucose and fructose. Hydrolysis of sucrose gives a mixture called invert sugar, which is sweeter and is also a common commercial ingredient. Finally, confections, especially commercial ones, are sweetened by a variety of syrups obtained by hydrolysis of starch. These sweeteners include all types of corn syrup.

Bakers' confectionery

Bakers' confectionery includes sweet baked goods, especially those that are served for the dessert course. Bakers' confections are sweet foods that feature flour as a main ingredient and are baked. Major categories include cakes, sweet pastries, doughnuts, scones, and cookies. In the Middle East and Asia, flour-based confections predominate.

Fig 3.03: Petits fours are baker's confections.https://commons.wikimedia.org/wiki/File:Pink_and_white_Easter_petits_fours.jpg#/media/File:Pink_and_white_Easter_petits_fours.jpg

Fig 3.04: Welsh cakes are cooked on a griddle.
https://commons.wikimedia.org/wiki/File:Wesh_cakes.jpg#/media/File:Wesh_cakes.jpg

Fig 3.05: Korean rainbow rice cake is for celebrations.
https://commons.wikimedia.org/wiki/File:Korean_rice_cake-Mujigae_tteok-01.jpg#/media/File:Korean_rice_cake-Mujigae_tteok-01.jpg

Fig 3.06: Birthday cakes may be elaborately decorated.
https://commons.wikimedia.org/wiki/File:Wikipedia_Birthday_Cake_16.1.jpg#/media/File:Wikipedia_Birthday_Cake_16.1.jpg

Fig 3.07: Choux pastry
https://commons.wikimedia.org/wiki/File:Choux_pastry_buns,_2009.jpg#/media/File:Choux_pastry_buns,_2009.jpg

Fig 3.08: Empty shells made with puff pastry can be filled with fruit or cream.
https://commons.wikimedia.org/wiki/File:Besamelas-(La_Rosita).jpg#/media/File:Besamelas-(La_Rosita).jpg

Fig 3.09: Pie is made from a pie crust and a sweet filling.
https://commons.wikimedia.org/wiki/File:Pumpkin-Pie-Slice.jpg#/media/File:Pumpkin-Pie-Slice.jpg

Types

Cakes have a somewhat bread-like texture, and many earlier cakes, such as the centuries-old stollen (fruit cake), or the even older king cake, were rich yeast breads. The variety of styles and presentations extends from simple to elaborate. Major categories include butter cakes, tortes, and foam cakes. Confusingly, some desserts that have the word cake in their names, such as cheesecake, are not technically cakes, while others, such as Boston cream pie are cakes despite seeming to be named something else.

Pastry is a large and diverse category of baked goods, united by the flour-based doughs used as the base for the product. These doughs are not always sweet, and the sweetness may come from the sugar, fruit, chocolate, cream, or other fillings that are added to the finished confection. Pastries can be elaborately decorated, or they can be plain dough.

Doughnuts may be fried or baked.

Scones and related sweet quick breads, such as bannock, are similar to baking powder biscuits and, in sweeter, less traditional interpretations, can seem like a cupcake.

Cookies are small, sweet baked treats. They originated as small cakes, and some traditional cookies have a soft, cake-like texture. Others are crisp or hard.

Sugar confectionery

Sugar confections include sweet, sugar-based foods, which are usually eaten as snack food. This includes sugar candies, chocolates, candied fruits and nuts, chewing gum, and sometimes ice cream. In some cases, chocolate confections are treated as a separate category, as are sugar-free versions of sugar confections.

Different dialects of English use regional terms for sugar confections:

In Britain, Ireland, and some Commonwealth countries, sweets (the Scottish Gaelic word suiteis is a derivative). Candy is used specifically for rock candy and occasionally for (brittle) boiled sweets. Lollies are boiled sweets fixed on sticks.
In Australia and New Zealand, lollies. Chewy and Chuddy are Australian slang for chewing gum.
In North America, candy, although this term generally refers to a specific range of confectionery and does not include some items of sugar confectionery (e.g. ice cream). Sweet is occasionally used, as well as treat.

In the USA, a chocolate-coated candy bar (e.g. Snickers) would be called a candy bar, in Britain more likely a chocolate bar than unspecifically a sweet.

American English	British English
confectionery (formal)	*confectionery* (formal)
rock candy, rock sugar	*sugar candy, candy*
hard candy	*boiled sweet, candy* (rare)
candied fruit, glazed fruit	*candied fruit*
cotton candy, fairy floss (archaic),[18]	*candy floss*
candy, treat (rare), *sweet* (rare)	*sweet*
dessert	*dessert, sweet* (rare), *pudding* (rare)
pudding	*custard*
chocolate bar, chocolate candy bar	*bar of chocolate* (e.g. Cadbury's Milk Chocolate)
candy bar (chocolate coated types)	*chocolate bar* (e.g. Snickers)
box of chocolates	*chocolates, box of chocolates*

Classification

The United Nations' International Standard Industrial Classification of All Economic Activities (ISIC) scheme (revision 4) classifies both chocolate and sugar confectionery as ISIC 1073, which includes the manufacture of chocolate and chocolate confectionery; sugar confectionery proper (caramels, cachous, nougats, fondant, white chocolate), chewing gum, preserving fruit, nuts, fruit peels, and making confectionery lozenges and pastilles. In the European Union, the Statistical Classification of Economic Activities in the European Community (NACE) scheme (revision 2) matches the UN classification, under code number 10.82.

In the United States, the North American Industry Classification System (NAICS 2012) splits sugar confectionery across three categories: National industry code 311340 for all non-chocolate confectionery manufacturing, 311351 for chocolate and confectionery manufacturing from cacao beans, and national industry 311352 for confectionery manufacturing from purchased chocolate.

Ice cream and sorbet are classified with dairy products under ISIC 1050, NACE 10.52, and NAICS 311520.

Examples

Sugar confectionery items include candies, lollipops, candy bars, chocolate, cotton candy, and other sweet items of snack food. Some of the categories and types of sugar confectionery include the following:

Chocolates: Bite-sized confectioneries generally made with chocolate, considered different from a candy bar made of chocolate.

Divinity: A nougat-like confectionery based on egg whites with chopped nuts.

Dodol: A toffee-like delicacy popular in Indonesia, Malaysia, and the Philippines

Dragée: Sugar-coated almonds and other types of sugar panned candies.

Fudge: Made by boiling milk and sugar to the soft-ball stage. In the US, it tends to be chocolate-flavored.

Halvah: Confectionery based on tahini, a paste made from ground sesame seeds.

Hard candy: Based on sugars cooked to the hard-crack stage. Examples include lollipops, jawbreakers (or gobstoppers), lemon drops, peppermint drops and disks, candy canes, rock candy, etc. Also included are types often mixed with nuts such as brittle.

Ice cream: Frozen, flavored cream, often containing small pieces of chocolate, fruits and/or nuts.

Jelly candies: Including those based on sugar and starch, pectin, gum, or gelatin such as Turkish delight (lokum), jelly beans, gumdrops, jujubes, gummies, etc.

Liquorice: Containing extract of the liquorice root, this candy is chewier and more resilient than gums or gelatin candies. For example, Liquorice allsorts. It has a similar taste to star anise.

Marshmallow: For example, circus peanuts.

Marzipan: An almond-based confection, doughy in consistency.

Mithai: A generic term for confectionery in India, typically made from dairy products and/or some form of flour. Sugar or molasses are used as sweeteners.

Persipan: similar to marzipan, but made with peaches or apricots instead of almonds.

Pastillage: A thick sugar paste made with gelatin, water, and confectioner's sugar, similar to gum paste, which is moulded into shapes, which then harden.

Tablet: A crumbly milk-based soft and hard candy, based on sugars cooked to the soft ball stage. Comes in several forms, such as wafers and heart shapes. Not to be confused with tableting, a method of candy production.

Taffy (British: chews): A sugar confection that is folded many times above 120 °F (50 °C), incorporating air bubbles thus reducing its density and making it opaque.

Fig 3.10: Thin wafer cookies such as pizzelle have been made since the Middle Ages.[15]
https://commons.wikimedia.org/wiki/File:Breakfast_pizzelle,_January_2013_(8505127567).jpg#/media/File:Breakfast_pizzelle,_Januar

Fig 3.11: Cookies can be elaborately decorated.
https://commons.wikimedia.org/wiki/File:Biscuiteers_Polka_Dot_Heart_Product.jpg#/media/File:Biscuiteers_Polka_Dot_Heart_Produc
t.jpg

Fig 3.12: Cookies can be mass-produced.
https://commons.wikimedia.org/wiki/File:Hydroxlarge.jpg#/media/File:Hydroxlarge.jpg

Toffee: A confection made by caramelizing sugar or molasses along with butter. Toffee has a glossy surface and textures ranging from soft and sticky to a hard, brittle material. Its brown color and smoky taste arise from the caramelization of the sugars.

Storage and shelf life

Shelf life is largely determined by the amount of water present in the candy and the storage conditions. High-sugar candies, such as boiled candies, can have a shelf life of many years if kept covered in a dry environment. Spoilage of low-moisture candies tends to involve a loss of shape, color, texture, and flavor, rather than the growth of dangerous microbes. Impermeable packaging can reduce spoilage due to storage conditions.

Candies spoil more quickly if they have different amounts of water in different parts of the candy (for example, a candy that combines marshmallow and nougat), or if they are stored in high-moisture environments. This process is due to the effects of water activity, which results in the transfer of unwanted water from a high-moisture environment into a low-moisture candy, rendering it rubbery, or the loss of desirable water from a high-moisture candy into a dry environment, rendering the candy dry and brittle.

Another factor, affecting only non-crystalline amorphous candies, is the glass transition process. This can cause amorphous candies to lose their intended texture.

Cultural roles

Both bakers' and sugar confections are used to offer hospitality to guests.

Confections are used to mark celebrations or events, such as a wedding cake, birthday cake or Halloween.

Tourists commonly eat confections as part of their travels. The indulgence in rich, sugary foods is seen as a special treat, and choosing local specialties is popular. For example, visitors to Vienna eat Sachertorte and visitors to seaside resorts in the UK eat Blackpool rock candy. Transportable confections like fudges and tablet may be purchased as souvenirs.

Nutrition

Generally, confections are low in micronutrients and protein but high in calories. They may be fat-free foods, although some confections, especially fried doughs and chocolate, are high-fat foods. Many confections are considered empty calories. Specially formulated chocolate has been manufactured in the past for military use as a high-density food energy source.

Many sugar confections, especially caramel-coated popcorn and the different kinds of sugar candy, are defined in US law as foods of minimal nutritional value.

Risks

Excessive consumption of confectionery has been associated with increased incidences of type 2 diabetes, obesity, and tooth decay.

Contaminants and coloring agents in confectionery can be particularly harmful to children. Therefore, confectionery contaminants, such as high levels of lead, have been restricted to 1 ppm in the US. There is no specific maximum in the EU.

Fig 3.13: Strudel is made with phyllo pastry.
https://commons.wikimedia.org/wiki/File:Bundevara.jpeg#/media/File:Bundevara.jpeg

Fig 3.14: Decorated doughnuts
https://commons.wikimedia.org/wiki/File:Christmas_doughnut_display_(15459326042).jpg#/media/File:Christmas_doughnut_display_(15459326042).jpg

Fig 3.15: Scones with jam
https://commons.wikimedia.org/wiki/File:Scones_Jam_Cream.jpg#/media/File:Scones_Jam_Cream.jpg

Candy colorants, particularly yellow colorants such as E102 Tartrazine, E104 Quinoline Yellow WS and E110 Sunset Yellow FCF, have many restrictions around the world. Tartrazine, for example, can cause allergic and asthmatic reactions and was once banned in Austria, Germany, and Norway. Some countries such as the UK have asked the food industry to phase out the use of these colorants, especially for products marketed to children

CHECK YOUR PROGRESS

Discuss the cultural roll of confectionery items.
Describe the nutrional value of confections.
Describe the risk involved in use of confections.

3.03 CANDY MAKING

https://en.wikipedia.org/wiki/Candy_making

Candy making is the preparation of candies and sugar confections. Candy making includes the preparation of many various candies, such as hard candies, jelly beans, gumdrops, taffy, liquorice, cotton candy, chocolates and chocolate truffles, dragées, fudge, caramel candy and toffee.

Candy is made by dissolving sugar in water or milk to form a syrup, which is boiled until it reaches the desired concentration or starts to caramelize. The type of candy depends on the ingredients and how long the mixture is boiled. Candy comes in a wide variety of textures, from soft and chewy to hard and brittle. A chocolatier is a person who prepares confectionery from chocolate, and is distinct from a chocolate maker, who creates chocolate from cacao beans and other ingredients. Cotton candy is a form of spun sugar often prepared using a cotton candy machine.

History

The technology for candy making has generally kept pace with the technology of the times. For example, when steam power became common in factories, steam power was also used in candy factories.

Candy making and consumption increased greatly during the Industrial Revolution in the 19th century. Candy had previously been made by hand, either occasionally at home or by specialists in small, local businesses. Increased mechanization caused prices to drop and production to increase.

In the late 19th century and especially the early 20th century, industrial candy making was almost exclusively a masculine affair, and home-based candy making was a feminine affair. Candy was considered sweet and dainty, so making it at home, giving it away to friends, and perhaps selling small amounts in the local area, conformed with the Western gender roles for women of the time. Most women making and selling candy did so only seasonally or for a little extra money; they rarely earned enough to support themselves or their families. Despite several large brands being named after women or otherwise capitalizing on wholesome, feminine, and maternal images, very few were owned or operated by women.

Gender segregation also affected candy workers in the 19th century and the first half of the 20th century. Men and boys were employed for cooking or operating machinery. Women were mostly employed for wrapping and putting candies in packages or for hand-dipping candies in chocolate. The best-paid women were chocolate dippers, yet the wages of these skilled and experienced female workers were almost always lower than that of the worst-paid male machine operators.

Fig 3.16: Rock candy is simply sugar, with optional coloring or flavor.
https://commons.wikimedia.org/wiki/File:Rock-Candy-Sticks.jpg#/media/File:Rock-Candy-Sticks.jpg

Hard candy

Hard candy, also referred to as boiled sweet, is a candy prepared from one or more syrups boiled to a temperature of 160 °C (320 °F). After a syrup boiled to this temperature cools, it is called hard candy, since it becomes stiff and brittle as it approaches room temperature. Hard candy recipes variously call for syrups of sucrose, glucose, or fructose. To add color, food coloring is sometimes used.

Fig 3.17: A bar of chocolate. To be eaten pure, or used as an ingredient.
https://commons.wikimedia.org/wiki/File:Hershey-bar-open.JPG#/media/File:Hershey-bar-open.JPG

Fig 3.18: Brittles are a combination of nuts and caramelized sugar.
https://commons.wikimedia.org/wiki/File:Peco-Peanut-Brittle-Bar.jpg#/media/File:Peco-Peanut-Brittle-Bar.jpg

Sugar stages

The final texture of candy depends on the sugar concentration. As the syrup is heated, it boils and the sugar concentration increases as water evaporates. A given temperature corresponds to a particular sugar concentration because the boiling-point elevation of the sugar solution is a colligative property (i.e., it is related to the concentration of the solution), so temperature is used as a marker for the necessary concentration. In general, higher temperatures and greater sugar concentrations result in hard, brittle candies, and lower temperatures result in softer candies. The stages of sugar cooking are as follows:

Stage	Temperature	Sugar concentration
thread (e.g., syrup)	110 to 112 °C (230 to 234 °F)	80%
soft ball (e.g., fudge)	112 to 116 °C (234 to 241 °F)	85%
firm ball (e.g., soft caramel candy)	118 to 120 °C (244 to 248 °F)	87%
hard ball (e.g., nougat)	121 to 130 °C (250 to 266 °F)	90%
soft crack (e.g., salt water taffy)	132 to 143 °C (270 to 289 °F)	95%
hard crack (e.g., toffee)	146 to 154 °C (295 to 309 °F)	99%
clear liquid	160 °C (320 °F)	100%
brown liquid (e.g., liquid caramel)	170 °C (338 °F)	100%
burnt sugar	177 °C (351 °F)	100%

Fig 3.19: Candy being panned (coated) in a giant pot at a candy factory in Nablus, West Bank
https://commons.wikimedia.org/wiki/File:Candy_in_the_making_in_Nablus_027_-_Aug_2011.jpg#/media/File:Candy_in_the_making_in_Nablus_027_-_Aug_2011.jpg

Fig 3.20: Hot liquid candy being poured into candy molds by a candymaker
https://commons.wikimedia.org/wiki/File:Ryan_Berley_Pouring_Candy_Molds_CHF-First-Friday-December-2012-011.JPG#/media/File:Ryan_Berley_Pouring_Candy_Molds_CHF-First-Friday-December-2012-011.JPG

Fig 3.21: Fruit-shaped hard candy
https://commons.wikimedia.org/wiki/File:HardCandy.jpg#/media/File:HardCandy.jpg

The names come from the methods used to test the syrup before thermometers became affordable. The "thread" stage is tested by cooling a little syrup, and pulling it between the thumb and forefinger. When the correct stage is reached, a thread will form. This stage is used for making syrups. For subsequent stages, a small spoonful of syrup is dropped into cold water, and the characteristics of the resulting lump are evaluated to determine the concentration of the syrup. A smooth lump indicates "ball" stages, with the corresponding hardness described. At the "soft crack" stage, the syrup forms threads that are just pliable. At the "hard crack" stage, the threads are brittle.

This method is still used today in some kitchens. A candy thermometer is more convenient, but has the drawback of not automatically adjusting for local conditions such as altitude, as the cold water test does.

Once the syrup reaches 171 °C (340 °F) or higher, the sucrose molecules break down into many simpler sugars, creating an amber-colored substance known as caramel. This should not be confused with caramel candy, although it is the candy's main flavoring.

Soft candy

Cotton candy

Cotton candy, also known as Candy Floss, is a form of spun sugar. Typical machines used to make cotton candy include a spinning head enclosing a small bowl into which granulated sugar is poured. Colored sugar or separate sugar and food coloring are used to provide color. Heaters near the rim of the head melt the sugar, which is squeezed out through tiny holes by centrifugal force, and the molten sugar solidifies in the air and is caught in a larger bowl which totally surrounds the spinning head. After the product builds up on the inside walls of the larger bowl, a stick, cone, or hands are inserted, upon which the sugar strands are gathered.

Marshmallows

Marshmallows are prepared using egg whites, corn syrup and sugar. The use of marshmallow to make a sweet dates back to ancient Egypt, where the recipe called for an extract from the root of the marshmallow plant (Althaea officinalis) and mixing it with nuts and honey. Another pre-modern recipe uses the pith of the marshmallow plant, rather than the root. In modern times, marshmallows are often commercially prepared using extrusion.

Chocolatiering

Chocolatiering, the preparing of confections from chocolate, involves the techniques of tempering, molding and sculpting. Tempering is a heat treatment method performed on chocolate involving heating and cooling the chocolate to result in desired characteristics like shininess of the chocolate or 'snap', the way it breaks. Molding is a design technique used in making chocolate pieces that are of a certain shape by taking liquid chocolate and pouring it into a mold and letting it harden. Sculpting is a type of three-dimensional artwork that may involve using molds and pieces of chocolate, and decorating the piece with designs in chocolate.

Tools and machinery

A variety of tools and machines are used in making candy, ranging from simple kitchen tools like bowls and spoons to elaborate factory machinery.

Fig 3.22: The bowl of a cotton candy machine
https://commons.wikimedia.org/wiki/File:Cotton_candy_making.JPG#/media/File:Cotton_candy_making.JPG

Fig 3.23: The spinning head of a cotton candy machine
https://commons.wikimedia.org/wiki/File:Spinning_head_of_the_cotton_candy_maker.jpg#/media/File:Spinning_head_of_the_cotton_candy_maker.jpg

Fig 3.24: Cotton candy being prepared
https://commons.wikimedia.org/wiki/File:Cotton_candy_%CE%9C%CE%B1%CE%BB%CE%BB%CE%AF_%CF%84%CE%B7%CF%82_%CE%B3%CF%81%CE%B9%CE%AC%CF%82.JPG#/media/File:Cotton_candy_%CE%9C%CE%B1%CE%BB%CE%BB%CE%AF_%CF%84%CE%B7%CF%82_%CE%B3%CF%81%CE%B9%CE%AC%CF%82.JPG

Fig 3.25: Marshmallow creme being prepared
https://commons.wikimedia.org/wiki/File:Marshmallow-Creme.jpg#/media/File:Marshmallow-Creme.jpg

Fig 3.26: A chocolatier making chocolate eggs
https://commons.wikimedia.org/wiki/File:Ei-chocolatier.JPG#/media/File:Ei-chocolatier.JPG

Fig 3.27: A chocolatier making a chocolate tower
https://commons.wikimedia.org/wiki/File:0_Frameries_-_Chocolatier_-_P%C3%A2tisserie_Godefroid_(2).JPG#/media/File:0_Frameries_-_Chocolatier_-_P%C3%A2tisserie_Godefroid_(2).JPG

Because exact temperature control is critical for some candies, a common tool is the candy thermometer. Inexpensive candy thermometers measure food temperatures up to about 160 °C, and those designed for commercial candy production may run even higher.
A starch mogul is used in candy factories to shape soft candies or candy centers from syrups or gels. These centers may then be sent through a chocolate enrober to coat them in chocolate.

CHECK YOUR PROGRESS

Explain the concepts in candy making.
Elaborate the histry of candies.
Explain the nature of hard candy.
Elaborate the importance of sugar concentration on texture of candy.
Explain the various soft candy types.
Elaborate the concept of cotton candy.
Explain the nature of mashmallows.
Explain the concept of chocolatiering.
Elaborate the various tools and machinery used in making candy.

3.04 TOFFEE

https://en.wikipedia.org/wiki/Toffee

Toffee is a confection made by caramelizing sugar or molasses (creating inverted sugar) along with butter, and occasionally flour. The mixture is heated until its temperature reaches the hard crack stage of 149 to 154 °C (300 to 310 °F). While being prepared, toffee is sometimes mixed with nuts or raisins.

Creation

The process of making toffee requires the boiling of ingredients until the mix is stiff enough to be pulled into a shape which holds and has a glossy surface. The resulting mixture will typically be poured into a shallow tray and allowed to cool to form a slab. Different mixes, processes, and most importantly, temperatures, will result in different textures and hardnesses, from soft and often sticky to a hard, brittle material. A brown color, and smoky taste, is imparted to the toffee by the caramelization of the sugars.

Variants and applications

A popular variant in the US is English toffee, which is a very buttery toffee often made with almonds. It is available in both chewy and hard versions. Heath bars are a type of confection made with an English toffee core. Although named English toffee it bears little resemblance to the wide range of confectionery known as toffee currently available in the United Kingdom. However, one can still find this product in the UK under the name "buttercrunch."

Another variant is honeycomb toffee, which is an aerated version with bubbles introduced by adding baking soda and vinegar while mixing. These react to form carbon dioxide, which is trapped in the highly viscous mixture. In the UK and Canada, the best known honeycomb confection is the Crunchie

Fig 3.28: Thorntons Special Toffee. Photo taken by Stratford490
https://commons.wikimedia.org/wiki/File:Thorntonstoffee.jpg#/media/File:Thorntonstoffee.jpg

Fig 3.29: Toffee from the UK (a chewy variant) in cellophane wrapping.
https://en.wikipedia.org/wiki/File:Toffee_Walkers%27_English.jpg#/media/File:Toffee_Walkers%27_English.jpg

Fig 3.30: Close-up view of sugar cane & refined sugar
https://commons.wikimedia.org/wiki/File:CSIRO_ScienceImage_10529_Sugarcane_and_bowl_of_sugar.jpg#/media/File:CSIRO_ScienceImage_10529_Sugarcane_and_bowl_of_sugar.jpg

bar. A similar Australian chocolate bar is the Violet Crumble. In New Zealand, toffee flavoured ice cream is called hokey pokey.

A particular application of toffee is in toffee apples, sometimes called candy apples, which are apples coated with hard toffee mounted on sticks. Toffee apples are similar to taffy apples and caramel apples, which are both covered in caramel.

Toffee used in confectionery can be mixed with many different ingredients to produce a variety of flavors: rum and butter, chocolate covered, vanilla and chocolate, rum and raisin, raspberry, and honeycomb.

CHECK YOUR PROGRESS

Describe the concept of toffee.
Discuss the process of creation of toffee.
Describe the variations and applications of toffee.

3.05 ICE CREAM

https://en.wikipedia.org/wiki/Ice_cream

Fig 3.31: Ice Cream Dessert
https://commons.wikimedia.org/wiki/File:Ice_Cream_dessert_02.jpg#/media/File:Ice_Cream_dessert_02.jpg

Ice cream (derived from earlier iced cream or cream ice) is a sweetened frozen food typically eaten as a snack or dessert. It is usually made from dairy products, such as milk and cream, and often combined with fruits or other ingredients and flavors. It is typically sweetened with sugar or sugar substitutes. Typically, flavourings and colourings are added in addition to stabilizers. The mixture is stirred to incorporate air spaces and cooled below the freezing point of water to prevent detectable ice crystals from forming. The result is a smooth, semi-solid foam that is solid at very low temperatures (< 2 °C or 35 °F). It becomes more malleable as its temperature increases.

The meaning of the phrase "ice cream" varies from one country to another. Phrases such as "frozen custard", "frozen yogurt", "sorbet", "gelato", and others are used to distinguish different varieties and styles. In some countries, such as the United States, the phrase "ice cream" applies only to a specific variety, and most governments regulate the commercial use of the various terms according to the relative quantities of the main ingredients, notably the amount of cream. Products that do not meet the criteria to be called ice cream are labelled "frozen dairy dessert" instead. In other countries, such as Italy and Argentina, one word is used for all variants. Analogues made from dairy alternatives, such as goat's or sheep's milk, or milk substitutes (e.g., soy milk or tofu), are available for those who are lactose intolerant, allergic to dairy protein, or vegan.

Ice cream may be served in dishes, for eating with a spoon, or in cones, which are licked. Ice cream may be served with other desserts, such as apple pie. Ice cream is used to prepare other desserts, including ice cream floats, sundaes, milkshakes, ice cream cakes and even baked items, such as Baked Alaska.

In many of those flavours, spicy ice creams are also available in some specific countries.

Fig 3.32: President Barack Obama eats ice cream as the press covers his visit to the Grand Ole Creamery on Grand Avenue in St. Paul, Minn., June 26, 2014. (Official White House Photo by Pete Souza)

https://commons.wikimedia.org/wiki/File:P062614PS-1376_(15179061845).jpg#/media/File:P062614PS-1376_(15179061845).jpg

Production

Before the development of modern refrigeration, ice cream was a luxury reserved for special occasions. Making it was quite laborious; ice was cut from lakes and ponds during the winter and stored in holes in the ground, or in wood-frame or brick ice houses, insulated by straw. Many farmers and plantation owners, including U.S. Presidents George Washington and Thomas Jefferson, cut and stored ice in the winter for use in the summer. Frederic Tudor of Boston turned ice harvesting and shipping into a big business, cutting ice in New England and shipping it around the world.

Fig 3.33: An electric ice cream maker
https://commons.wikimedia.org/wiki/File:Gelatiera.jpg#/media/File:Gelatiera.jpg

Ice cream was made by hand in a large bowl placed inside a tub filled with ice and salt. This was called the pot-freezer method. French confectioners refined the pot-freezer method, making ice cream in a sorbetière (a covered pail with a handle attached to the lid). In the pot-freezer method, the temperature of the ingredients is reduced by the mixture of crushed ice and salt. The salt water is cooled by the ice, and the action of the salt on the ice causes it to (partially) melt, absorbing latent heat and bringing the mixture below the freezing point of pure water. The immersed container can also make better thermal contact with the salty water and ice mixture than it could with ice alone.

The hand-cranked churn, which also uses ice and salt for cooling, replaced the pot-freezer method. The exact origin of the hand-cranked freezer is unknown, but the first U.S. patent for one was #3254 issued to Nancy Johnson on 9 September 1843. The hand-cranked churn produced smoother ice cream than the pot freezer and did it quicker. Many inventors patented improvements on Johnson's design.

In Europe and early America, ice cream was made and sold by small businesses, mostly confectioners and caterers. Jacob Fussell of Baltimore, Maryland was the first to manufacture ice cream on a large

scale. Fussell bought fresh dairy products from farmers in York County, Pennsylvania, and sold them in Baltimore. An unstable demand for his dairy products often left him with a surplus of cream, which he made into ice cream. He built his first ice cream factory in Seven Valleys, Pennsylvania, in 1851. Two years later, he moved his factory to Baltimore. Later, he opened factories in several other cities and taught the business to others, who operated their own plants. Mass production reduced the cost of ice cream and added to its popularity.

Fig 3.34: Ice cream line in Balbiino factory in Estonia
https://commons.wikimedia.org/wiki/File:Balbiino_pulgaj%C3%A4%C3%A4tise_liin.jpg#/media/File:Balbiino_pulgaj%C3%A4%C3%A4tise_liin.jpg

The development of industrial refrigeration by German engineer Carl von Linde during the 1870s eliminated the need to cut and store natural ice, and, when the continuous-process freezer was perfected in 1926, commercial mass production of ice cream and the birth of the modern ice cream industry was underway.

In modern times, a common method for producing ice cream at home is to use an ice cream maker, an electrical device that churns the ice cream mixture while cooled inside a household freezer. Some more expensive models have an inbuilt freezing element. A newer method is to add liquid nitrogen to the mixture while stirring it using a spoon or spatula for a few seconds; a similar technique, advocated by Heston Blumenthal as ideal for home cooks, is to add dry ice to the mixture while stirring for a few minutes. Some ice cream recipes call for making a custard, folding in whipped cream, and immediately freezing the mixture. Another method is to use a pre-frozen solution of salt and water, which gradually melts as the ice cream freezes.

An unusual method of making ice-cream was done during World War II by American fighter pilots based in the South Pacific. They attached pairs of 5-US-gallon (19 l) cans to their aircraft. The cans were fitted with a small propeller, this was spun by the slipstream and drove a stirrer, which agitated the mixture while the intense cold of high altitude froze it.

Retail sales

Ice cream can be mass-produced and thus is widely available in developed parts of the world. Ice cream can be purchased in large cartons (vats and squrounds) from supermarkets and grocery stores, in smaller quantities from ice cream shops, convenience stores, and milk bars, and in individual servings from small carts or vans at public events. In 2015, US produced nearly 900 million gallons of ice cream.

Fig 3.35: A bicycle-based ice cream street vendor in Indonesia
https://commons.wikimedia.org/wiki/File:Indonesia_bike34.JPG#/media/File:Indonesia_bike34.JPG

Specialty job

Today, jobs specialize in the selling of ice cream. The title of a person who works in this speciality is often called an 'ice cream man', however women also specialize in the selling of ice cream. People in this line of work often sell ice cream on beaches. On beaches, ice cream is either sold by a person who carries a box full of ice cream and is called over by people who want the purchase ice cream, or by a person who drives up to the top of the beach and rings a bell. In the second method, people go up to the top of the beach and purchase ice cream straight from the ice cream seller, who is often in an ice cream van. In Turkey and Australia, ice cream is sometimes sold to beach-goers from small powerboats equipped with chest freezers.

Some ice cream distributors sell ice cream products from traveling refrigerated vans or carts (commonly referred to in the US as "ice cream trucks"), sometimes equipped with speakers playing children's music or folk melodies (such as "Turkey in the Straw"). The driver of an ice cream van drives throughout neighborhoods and stops every so often, usually every block. The seller on the ice cream van sells the ice cream through a large window; this window is also where the customer asks

Fig 3.36: Ice cream van vendor delivery
https://commons.wikimedia.org/wiki/File:East_Village_ice_cream_truck.jpg#/media/File:East_Village_ice_cream_truck.jpg

for ice cream and pays. Ice cream vans in the United Kingdom make a music box noise rather than actual music.

Ingredients and standard quality definitions

In the U.S., ice cream may have the following composition:

greater than 10% milkfat and usually between 10% and as high as 16% fat in some premium ice creams
9 to 12% milk solids-not-fat: this component, also known as the serum solids, contains the proteins (caseins and whey proteins) and carbohydrates (lactose) found in milk
12 to 16% sweeteners: usually a combination of sucrose and glucose-based corn syrup sweeteners
0.2 to 0.5% stabilisers and emulsifiers
55% to 64% water, which comes from the milk or other ingredients.

These compositions are percentage by weight. Since ice cream can contain as much as half air by volume, these numbers may be reduced by as much as half if cited by volume. In terms of dietary considerations, the percentages by weight are more relevant. Even the low-fat products have high caloric content: Ben and Jerry's No-Fat Vanilla Fudge contains 150 calories (630 kJ) per half-cup due to its high sugar content.

According to Canadian Food and Drug Regulations, ice cream in Canada must be at least 10 percent milk fat, and must contain at least 180 grams of solids per liter. When cocoa, chocolate syrup, fruit, nuts, or confections are added, the percentage of milk fat can be 8 percent.

Physical properties

Ice cream is considered as a colloidal system. It is composed by ice cream crystals and aggregates, air that does not mixes with the ice cream by forming small bubbles in the bulk and partially coalesced fat globules. This dispersed phase made from all the small particles is surrounded by an unfrozen continuous phase composed by sugars, proteins, salts, polysaccharides and water. Their interactions determine the properties of ice cream, whether soft and whippy or hard.

Ostwald ripening

Ostwald ripening is the explanation for the growth of large crystals at the expense of small ones in the dispersion phase. This process is also called migratory recrystallization. It involves the formation of sharp crystals. Theories about Ostwald recrystallization admit that after a period of time, the recrystallization process can be described by the following equation:

$r = r(0) + R\ t \exp(1/n)$

Where r (0) is the initial size, n the order of recrystallization, t a time constant for recrystallization that depends on the rate R (in units of size/ time).

To make ice cream smooth, recrystallization must occur as slowly as possible, because small crystals create smoothness, meaning that r must decrease.

Around the world

Around the world, different cultures have developed unique versions of ice cream, suiting the product to local tastes and preferences.

The most traditional Argentine helado (ice cream) is very similar to Italian gelato, in large part due to the historical influence of Italian immigrants on Argentinian customs.

Per capita, Australians and New Zealanders are among the leading ice cream consumers in the world, eating 18 litres and 20 litres each per year respectively, behind the United States where people eat 23 litres each per year.

In China, besides the popular flavour such as vanilla, chocolate, coffee, mango and strawberry, many Chinese ice-cream manufacturers also introduced other traditional Chineses flavours such as black sesame and red beans.

In 1651, Italian Francesco dei Coltelli opened an ice cream café in Paris and the product became so popular that during the next 50 years another 250 cafés opened in Paris.

In Greece, ice cream in its modern form, or pagotó (Greek: παγωτό), was introduced in the beginning of the 20th century.

India is one of the largest producers of ice cream in the world, but most of its ice cream is consumed domestically.

In Indonesia, a type traditional ice cream called "Es Puter" or "stirred ice cream is made from coconut milk, pandanus leaves, sugar—and flavors that include avocado, jackfruit, durian, palm sugar, chocolate, red bean, and mung bean.

Fig 3.37: Black sesame soft ice cream, Japan
https://commons.wikimedia.org/wiki/File:Black_sesame_soft_ice_cream.jpg#/media/File:Black_sesame_soft_ice_cream.jpg

Fig 3.38: Sandwich ice cream
https://commons.wikimedia.org/wiki/File:IceCreamSandwich.jpg#/media/File:IceCreamSandwich.jpg

Fig 3.39: Choco glazed Eskimo Pie ice cream
https://commons.wikimedia.org/wiki/File:Magnum_ice_cream.jpg#/media/File:Magnum_ice_cream.jpg

In Iran, Fālūde (Persian: فالوده) or Pālūde (Persian: پالوده) is a Persian sorbet made of thin vermicelli noodles, frozen with sugar syrup and rose water. The dessert is often served with lime juice and sometimes ground pistachios.

Italian ice cream or Gelato as it is known, is a traditional and a popular dessert in Italy. Much of the production is still hand-made and flavoured by each individual shop in "produzione propria" gelaterias. Gelato is made from whole milk, sugar, sometimes eggs, and natural flavourings. Gelato typically contains 7–8% fat, less than ice cream's minimum of 10%.

Sorbetes is a Philippine version for common ice cream usually peddled from carts by pedlars who roam streets in the Philippines. Despite the similarities between the name "sorbetes" and sorbet, "sorbetes" is not a type of sorbet.

In Spain, ice cream is often in the style of Italian gelato. Spanish gelato can be found in many cafes or specialty ice cream stores. While many traditional flavours are sold, cafes may also sell unique flavouurs like nata, crema catalana, or tiramisu.

Dondurma is the name given to ice cream in Turkey. Dondurma typically includes milk, sugar, salep, and mastic.

In the United Kingdom, 14 million adults buy ice cream as a treat, in a market worth £1.3 billion (according to a report produced in September 2009).

In the United States, ice cream made with just cream, sugar, and a flavouring (usually fruit) is sometimes referred to as "Philadelphia style" ice cream. Ice cream that uses eggs to make a custard is sometimes called "French ice cream". American federal labeling standards require ice cream to contain a minimum of 10% milk fat. Americans consume about 23 liters of ice cream per person per year — the most in the world.

Ice cream cone

Mrs Marshall's Cookery Book, published in 1888, endorsed serving ice cream in cones, but the idea definitely predated that. Agnes Marshall was a celebrated cookery writer of her day and helped to popularise ice cream. She patented and manufactured an ice cream maker and was the first person to suggest using liquefied gases to freeze ice cream after seeing a demonstration at the Royal Institution.

Reliable evidence proves that ice cream cones were served in the 19th century, and their popularity increased greatly during the St. Louis World's Fair in 1904. According to legend, at the World's Fair an ice cream seller had run out of the cardboard dishes used to put ice cream scoops in, so they could not sell any more produce. Next door to the ice cream booth was a Syrian waffle booth, unsuccessful due to intense heat; the waffle maker offered to make cones by rolling up his waffles and the new product sold well, and was widely copied by other vendors.

Other frozen desserts

The following is a partial list of ice cream-like frozen desserts and snacks:

Ais kacang: a dessert in Malaysia and Singapore made from shaved ice, syrup, and boiled red bean and topped with evaporated milk. Sometimes, other small ingredients like raspberries and durians are added in, too.

Booza: an elastic, sticky, high level melt resistant ice cream.

Fig 3.40: Italian ice cream, gelato in Rome, Italy
https://commons.wikimedia.org/wiki/File:Italian_ice_cream.jpg#/media/File:Italian_ice_cream.jpg

Fig 3.41: Raspberry sorbet
https://commons.wikimedia.org/wiki/File:RaspberrySherbet.jpg#/media/File:RaspberrySherbet.jpg

Fig 3.42: Bananas Foster flaming ice cream
https://commons.wikimedia.org/wiki/File:Banana_flamb%C3%A9_-_by_Jenene.jpg#/media/File:Banana_flamb%C3%A9_-_by_Jenene.jpg

Dondurma: Turkish ice cream, made of salep and mastic resin

Frozen custard: at least 10% milk fat and at least 1.4% egg yolk and much less air beaten into it, similar to Gelato, fairly rare. Known in Italy as Semifreddo.

Frozen yogurt: made with yogurt instead of milk or cream, it has a tart flavour and lower fat content.

Gelato: an Italian frozen dessert having a lower milk fat content than ice cream.

Halo-halo: a popular Filipino dessert that is a mixture of shaved ice and milk to which are added various boiled sweet beans and fruits, and served cold in a tall glass or bowl.

Ice cream sandwich: two (usually) soft biscuits, cookies or cake sandwiching a bar of ice cream.

Ice milk: less than 10% milk fat and lower sweetening content, once marketed as "ice milk" but now sold as low-fat ice cream in the United States.

Popsicle (ice pop or ice lolly): frozen fruit puree, fruit juice, or flavoured sugar water on a stick or in a flexible plastic sleeve.

Kulfi: believed to have been introduced to South Asia by the Mughal conquest in the 16th century; its origins trace back to the cold snacks and desserts of Arab and Mediterranean cultures.

Maple toffee: Also known as maple taffy. A popular springtime treat in maple-growing areas is maple toffee, where maple syrup boiled to a concentrated state is poured over fresh snow congealing in a toffee-like mass, and then eaten from a wooden stick used to pick it up from the snow.

Mellorine: non-dairy, with vegetable fat substituted for milk fat

Parevine: Kosher non-dairy frozen dessert established in 1969 in New York

Patbingsu - A popular Korean shaved ice dessert commonly served with sweet toppings such as fruit, red bean, or sweetened condensed milk.

Pop up ice cream

Sherbet: 1–2% milk fat and sweeter than ice cream.

Sorbet: fruit puree with no dairy products

Snow cones, made from balls of crushed ice topped with flavoured syrup served in a paper cone, are consumed in many parts of the world. The most common places to find snow cones in the United States are at amusement parks.

Cryogenics

In 2006, some commercial ice cream makers began to use liquid nitrogen in the primary freezing of ice cream, thus eliminating the need for a conventional ice cream freezer. Brands are Dippin' Dots. The preparation results in a column of white condensed water vapour cloud. The ice cream, dangerous to eat while still "steaming" with liquid nitrogen, is allowed to rest until the liquid nitrogen is completely vapourised. Sometimes ice cream is frozen to the sides of the container, and must be allowed to thaw. Good results can also be achieved with the more readily available dry ice, and

authors such as Heston Blumenthal have published recipes to produce ice cream and sorbet using a simple blender.

Another vendor, Creamistry, creates ice cream from liquid ingredients as customers watch. It has a softer texture than regular ice cream, because ice crystals have less time to form.

Fig 3.43: Dippin' Dots Rainbow Ice ice cream
https://commons.wikimedia.org/wiki/File:Dippin%27_Dots_Rainbow_Flavored_Ice.jpg#/media/File:Dippin%27_Dots_Rainbow_Flavored_Ice.jpg

CHECK YOUR PROGRESS

Explain the concept of icecream.
Explain how ice creams are produced.
Elaborate the retail sale of ice cream.
Explain the various specialized jobs in ice cream industry.
Elaborate the ingredients and standard quality definitions in ice cream.
Explain the various physical properties of ice cream.
Elaborate the concept of Ostwald ripening.
Explain the various types of ice creams around the world.
Elaborate the concept of ice cream cone.
Explain the nature of some frozen desserts.
Elaborate the use of cryogenics in ice cream.

3.06 CHIKKI

https://en.wikipedia.org/wiki/Chikki

Chikki (Hindi: चिक्की) is a traditional Indian sweet (brittle) generally made from peanuts and jaggery. There are several different varieties of chikki in addition to the most common groundnut (peanut) chikki. Each variety of chikki is named depending upon the ingredients used, which include puffed or roasted Bengal gram, sesame, puffed rice, beaten rice, or Khobara (desiccated coconut).

In regions of North India, especially Bihar and Uttar Pradesh, this sweet is called Layiya Patti. In Sindh and Sindhi regions of India, it is called Layee or Lai (Sindhi: it is known ,and in Bangladesh (لائي :Bengali)as kôtkôti কটকটি). Similar dishes are also very popular in Brazil, where it is known as pé-de-moleque, and in Paraguay, where it is called Ka'í Ladrillo.

Fig 3.44: Assorted chikkis
https://commons.wikimedia.org/wiki/File:Chikki_assortment.jpg#/media/File:Chikki_assortment.jpg

Ingredients

Assorted chikkis

Some chikkis are made using a combination of these ingredients. Special chikkis are made out of cashews, almonds, and pistachios. Though jaggery is the usual sweetener material, sugar is used as the base in certain types of chikkis. It is a very popular sweet item in both rural and urban South Asia (spanning India, Pakistan, Bangladesh, Nepal and Sri Lanka). Some also add glucose to the chikkis, which are usual there. It just started from a single flavor of jaggery and peanuts. But today there are many different exotic flavors available in the market.

In the South Indian state of Tamil Nadu, the preparation is with a larger proportion of nuts to jaggery and the mixture is formed into balls rather than slabs. The most common versions are kadalai urundai (peanut balls), ellu urundai (sesame balls) and pori urundai (puffed rice balls). In Kerala, it is made in

both slab and ball forms. Peanut based sweet is called as kadala mithai or kappalandi mithai or in some places as abhayaarthi katta. And the sesame based sweet is called as ellunda.

Preparation

The preparation of chikkis consists of first preparing the hot jaggery syrup with a minimum of water, adding nuts to the syrup to coat them (with the syrup) and then transferring the nuts to a wooden mould, then rolling them to a thickness of about 6–8 mm using a wooden roller, then placing into a steel plate for cooling, cutting into slabs, and packing. In homes, smaller quantities are hand rolled with wooden rollers.

Most popular chikkis are sourced from the Indian towns of Lonavala, Matheran, Mahabaleshwar, Panchgani Karjat in Maharashtra and Bhuj in Gujarat.

CHECK YOUR PROGRESS

Describe the concept of chikki.
Discss the ingredients used in making chikkis.
Describe the process of preparation of chikkis.

3.07 DRAGÉE

https://en.wikipedia.org/wiki/Drag%C3%A9e

Fig 3.45: Another form of dragée: "Liebesperlen" sweets (love pearls)
https://commons.wikimedia.org/wiki/File:Liebesperlen.JPG#/media/File:Liebesperlen.JPG

A dragée (/dræˈʒeɪ/ drazh-AY) is a bite-sized form of confectionery with a hard outer shell—which is often used for another purpose (e.g. decorative, symbolic, medicinal, etc.) in addition to consumption.

Use

Jordan almonds

A classic form of dragée and comfit, Jordan almonds, also known as mlabas (ملبس, lit. "coated" or "covered") in Arabic, sugared almonds, confetti, or koufeta consist of almonds which are sugar panned in various pastel colors.

Jordan almonds are often used as wedding favors—like the Italian Bomboniere—with the "bitter" almonds and the "sweet" sugar symbolizing the bitterness of life and sweetness of love. The treats are often packaged in groups of five to represent happiness, health, longevity, wealth, and fertility. At Italian and Greek weddings, the almonds are placed in groups of five, an odd number that is indivisible to symbolize the unity of husband and wife. In the Middle East, Jordan almonds are considered an aphrodisiac so there are always plenty on hand for the newlyweds and their guests.

Fig 3.46: A chocolate cake decorated with icing, strawberries, and silver metallic dragées.
https://commons.wikimedia.org/wiki/File:CakeDecoration.jpg#/media/File:CakeDecoration.jpg

Jordan almonds are thought to originate in ancient Rome, where honey-covered almonds were introduced by a Roman baker and confectioner named Julius Dragatus. His confections were called dragati and were served by nobility at weddings and births. When sugar became more readily available in the 15th century, the nuts were coated in sugar instead. In Sulmona, Italy, the technique of creating the dragée almonds was perfected by the Pelino family.

The term Jordan is most likely a corrupted version of the French word jardin, meaning "garden", hence, a cultivated rather than wild almond. However, others suggest the term referred to a variety of almonds originally grown along the Jordan River characterized by long, thin, slender, rather smooth kernels in thick, heavy shells.

Still others believe that Jordan is a corruption of the name of the town of Verdun in the northeast of France. In the 13th century, when the medieval crusaders brought sugar to Europe after their campaigns in the Holy Land, it was very valuable and considered medicinal. During that time, an apothecary in Verdun began coating other medicines with sugar (calling them dragées) to make them easier to take. The town of Verdun became very well known for its dragées de Verdun.

Panned chocolate

Other chocolate dragées with multi-colored candy shells include the M&M's, initially designed to allow easy transport and consumption of chocolate for the U.S. military, have evolved into a popular candy, but are also sold as decorative dragées in 25 different colors.

Medicinal dragées

Used to increase tolerability of bitter medication or merely to compel consumption, medicated candies or sugar coated pills can be referred to as dragées (e.g., Ayds was a popular weight loss candy in the 1980s).

Metallic decorative balls

Another form of dragée is a small sphere of sugar, in the Commonwealth often called cachous, used primarily in the decoration of cookies, cakes, and other forms of bakery. These are produced in various sizes, typically 3 to 4 mm (0.12 to 0.16 in) in diameter. This is larger than nonpareils and smaller than large pearl tapioca.

Silver dragées have long been used for both wedding and holiday food decoration. More recently, metallic gold, copper, rainbow colors (red, green, blue, etc.), and pearlescent colors have become available.

The U.S. Food and Drug Administration considers the metallic-finish dragées to be inedible, and they are sold with a notice that they are for decorative purposes only. Early in the 20th century, the silver finish may have contained mercury (it no longer does). The sale of these dragées was banned for some time. Although the metallic-finish dragées can be purchased in 49 U.S. states, they are no longer sold in California due to a 2003 lawsuit against several sellers. However, in other countries (including the United Kingdom) they are classified as food items.

CHECK YOUR PROGRESS

Explain the concept of dragée.
Elaborate the use of dragée.
Explain the concept of Jordan almonds.
Elaborate the concept of panned chocolate.
Explain the concept of medicinal dragée.
Explain the metallic decorative balls.

3.08 CHEWING GUM

https://en.wikipedia.org/wiki/Chewing_gum

Chewing gum is a soft, cohesive substance designed to be chewed without being swallowed. Modern chewing gum is composed of gum base, sweeteners, softeners/plasticizers, flavors, colors, and, typically, a hard or powdered polyol coating. Its texture is reminiscent of rubber because of the

physical-chemical properties of its polymer, plasticizer, and resin components, which contribute to its elastic-plastic, sticky, chewy characteristics.

History

The cultural tradition of chewing gum seems to have developed through a convergent evolution process, as traces of this habit have arisen separately in many of the early civilizations. Each of the early precursors to chewing gum were derived from natural growths local to the region and were chewed purely out the instinctual desire to masticate. Early chewers did not necessarily desire to derive nutritional benefits from their chewable substances, but at times sought taste stimuli and teeth cleaning or breath-freshening capabilities.

Fig 3.47: Stick type of Chewing gum that includes xylitol.
https://commons.wikimedia.org/wiki/File:Chewing_gum_stick.jpg#/media/File:Chewing_gum_stick.jpg

Fig 3.48: Chewing gum balls
https://commons.wikimedia.org/wiki/File:Bubble_gum_at_the_Haribo_factory.jpg#/media/File:Bubble_gum_at_the_Haribo_factory.jpg

Fig 3.49: Bubblegum bubble.
https://commons.wikimedia.org/wiki/File:Bubblegum.jpg#/media/File:Bubblegum.jpg

Chewing gum in many forms has existed since the Neolithic period. 6,000-year-old chewing gum made from birch bark tar, with tooth imprints, has been found in Kierikki in Finland. The tar from which the gums were made is believed to have antiseptic properties and other medicinal benefits. It is chemically similar to petroleum tar and is in this way different from most other early gum. The Mayans and Aztecs were the first to exploit the positive properties of gum, they used chicle, a natural tree gum, as a base for making a gum-like substance and to stick objects together in everyday use. Forms of chewing gums were also chewed in Ancient Greece. The Ancient Greeks chewed mastic gum, made from the resin of the mastic tree. Mastic gum, like birch bark tar, has antiseptic properties and is believed to have been used to maintain oral health. Both chicle and mastic are tree resins. Many other cultures have chewed gum-like substances made from plants, grasses, and resins.

Variations of early chewing gum worldwide

Ancient civilization	Chewing gum precursor
Ancient Greece	Mastic tree bark
Ancient Maya	Chicle
Chinese	Ginseng plant roots
Eskimos	Blubber
Native Americans	Sugar pine and spruce sap
South Americans	Coca leaves
South Asia (India)	Betel nuts
United States (early settlers)	Tobacco leaves

Ingredient composition

Gum base composition is considered proprietary information known by select individuals within each gum-manufacturing company. Information about the other components of chewing gum are more accessible to the public and they are listed in Table.

Table : Common Ingredients in the Formulation of Modern Chewing Gum

Ingredient	Percent (by weight) Composition	Functionality	Common Examples	
Gum Base[2]	25-35%	Although the formulation of gum bases is considered proprietary information for industry competitors, three main components make up all gum bases: resin, wax, and elastomer. Resin (ex. terpene) is the main chewable portion. Wax softens the gum. Elastomers add flexibility. The molecular composition of gum base is very similar to that of plastics and rubbers.	Natural or Synthetic Ingredients (See Table 3)	
Sweeteners	Sugar Alcohols: 40-50% Artificial Sweeteners: 0.05-0.5%	Bulk Polyol Sweeteners are responsible for initial sweetness, whereas intensive sweeteners are intended for prolonging the sweetness effect. Intensive Sweeteners are often encapsulated to delay the release of flavor.	Bulk Polyol Sweeteners[20]: sugar, dextrose, glucose or corn syrup, erythritol, isomalt, xylitol, maltitol, mannitol, sorbitol, lactitol	Intensive Sweeteners[21]: aspartame, acesulfame-K, saccharine, sucralose, neohesperidine, dihydrichalcone
Glycerine	2-15%	To maintain moistness.		
Softener/Plasticizer	1-2%	To soften gum by increasing flexibility and reducing brittleness by altering the glass transition temperature. Quantities of this additive are altered in order to balance processability and packaging speed.	lecithin, hydrogenated vegetable oils, glycerol ester, lanolin, methyl ester, pentaerythritol ester, rice bran wax, stearic acid, sodium and potassium stearates	
Flavors[22]	1.5-3.0%	For taste and sensory appeal. Flavor components in gum exist in liquid, powder or micro-encapsulatedforms.[23] Liquid flavor incorporations are either water-soluble, oil-soluble, or water-dispersible emulsions. The oil-soluble flavors remain in the gum longer, resulting in longer lasting flavor sensations, because the gum base is hydrophobic and attracted to oil-based components.	Natural or synthetic Peppermint and spearmint are the most popular flavors.[24] Food acids are implemented to provide a sour flavor (i.e. citric, tartaric, malic, lactic, adipic, and fumaric acids).	
Colors	Variable	For visual appeal.	Natural or Synthetic	

Gum base

Gum base is made of polymers, plasticizers, and resins. Polymers, including elastomers, are responsible for the stretchy and sticky nature of chewing gum. Plasticizers improve flexibility and reduce brittleness, contributing to the plastic and elastic nature of gum. The interactions of plasticizers within gum base are governed by solubility parameters, molecular weight, and chemical structure. Resins compose the hydrophobic portion of the gum base, responsible for its chewiness. The exact ingredients and proportions used in each brand's gum base are trade secrets within the gum industry.

Manufacturing process

First, gum base is previously prepared through a melting and straining or filtering process. The formulation for gum base is proprietary information known to few individuals within each gum-producing company. Next, other ingredients such as nutritive and non-nutritive sweeteners and flavors are added to the gum base until the warm mixture thickens like dough. The gum base mixture is heated during this mixing process in order to increase the entropy of the polymers to achieve a more uniform dispersion of ingredients. Then, extrusion technology is implemented to smooth, form, and shape the gum. Next, the gum goes through a shaping process that is determined by gum type and consumer demand. For example, cut and wrap (chunk or cube) pieces are severed straight out of the extruder using a vertical cutter. Sheeting is a technique often used for stick, slab and tab gums. Next, gum is either conditioned by being sprinkled with a powdered polyol or coated via the application of subsequent layers of coating using temperature controlled coating basins before it is sent to packaging.

Product varieties

Chewing gum can come in a variety of formats ranging from 1.4 to 6.9 grams per piece, and products can be differentiated by the consumers' intent to form bubbles or the sugar/sugarless dichotomy.

Chewing gum typically comes in three formats: tablets, coated pellets, and sticks/ slabs. Bubble gum typically come in three formats as well: tablets, hollow balls, and cubes or chunks. Stick, slab, and tab gums typically come in packs of about 5 to 17 sticks, and their medium size allows for softer texture. Pellet gums, or dragée gums, are pillow shaped pieces that are almost always coated. Packaging of pellet gums can vary from boxes to bottles to blister packs. The coating of pellet gum allows for the opportunity for multiple flavor sensations, since coating is done in a layering process and different flavor attributes can be added to various layers. Cube or chunk gums, which are typically intended for bubble blowing, are called cut and wrap gums as they are typically severed from continuous strands of extruded gum and packaged directly.

Quality and safety

Chewing gum is rather shelf stable because of its non-reactive nature and low moisture content. The water activity of chewing gum ranges from 0.40 to 0.65. The moisture content of chewing gum ranges from 3 to 6%. In fact, chewing gum retains its quality for so long that, in most countries, it is not required by law to be labeled with an expiration date. If chewing gum remains in a stable environment, over time the gum may become brittle or lose some of its flavor, but it will never be unsafe to eat. If chewing gum is exposed to moisture, over time water migration may occur, making the gum soggy. In lollipops with a gum center, water migration can lead to the end of the product's shelf life, causing the exterior hard candy shell to soften and the interior gum center to harden.

Physical and chemical characteristics

The physical and chemical properties of chewing gum impact all aspects of this product, from manufacturing to sensory perception during mastication.

Chewiness

The polymers that make up the main component of chewing gum base are hydrophobic. This property is essential because it allows for retention of physical properties throughout the mastication process. Because the polymers of gum repel water, the water-based saliva system in a consumer's mouth will

dissolve the sugars and flavorings in chewing gum, but not the gum base itself. This allows for gum to be chewed for a long period of time without breaking down in the mouth like conventional foods. Chewing gum can be classified as a product containing a liquid phase and a crystalline phase, providing gum with its characteristic balance of plastic and elastic properties.

Stickiness

While hydrophobic polymers beneficially repel water and contribute to chewiness, they also detrimentally attract oil. The stickiness of gum results from this hydrophobic nature, as gum can form bonds and stick when it makes contact with oily surfaces such as sidewalks, skin, hair, or the sole of one's shoe. To make matters worse, unsticking the gum is a challenge because the long polymers of the gum base stretch, rather than break. The sticky characteristic of gum may be problematic during processing if the gum sticks to any machinery or packaging materials during processing, impeding the flow of product. Aside from ensuring that the machinery is free from lipid-based residues, this issue can be combatted by the conditioning and coating of gum toward the end of the process. By adding either a powder or a coating to the exterior of the gum product, the hydrophobic gum base binds to the added substance instead of various surfaces with which it may come in contact.

Bubble-blowing capability

Bubblegum bubbles are formed when the tension and elasticity of gum polymers acts against the constant and equally dispersed pressure of air being directed into the gum bolus. Bubble gum bubbles are circular because pressure from the focused air being directed into the bolus acts equally on all of the interior surfaces of the gum cud, uniformly pushing outward on all surfaces as the polymers extend. As the bubble expands, the polymers of the gum base stretch and the surface of the bubble begins to thin. When the force of the air being blown into the bubble exceeds the force that the polymers can withstand, the polymers overextend and the bubble pops. Due to the elastic attributes of chewing gum, the deflated bubble recoils and the wad of gum is ready to continue being chewed.

Gum bases with higher molecular weights are typically used in gums intended to meet bubble-forming expectations. Higher molecular weight gum bases include longer polymers that are able to stretch further, and thus are able to form larger bubbles that retain their shape for a longer time.

Flavor release

Flavor delivery is extended throughout the mastication process by timed release of different flavor components due to the physical-chemical properties of many of chewing gum's ingredients. Entropy is a key player in the process of flavor delivery; because some gum components are more soluble in saliva than gum base and because over time flavor components desire to increase their entropy by becoming dispersed in the less ordered system of the mouth than in the more ordered system of the gum bolus, flavor delivery occurs. During the first three to four minutes of the chew, bulking agents such as sugar or sorbitol and maltitol have the highest solubility and, therefore, are chewed out first. As these components dissolve in the consumers' saliva and slide down the esophagus, they are no longer retained in the gum base or perceived by the chewer. During the next phase of the chew in the four to six minute range, intense sweeteners and some acids are dissolved and chewed out. These components last slightly longer than the bulking agents because they have a slightly lower solubility. Next, encapsulated flavors are released during either 10-15 minute into the chew or after 30–45 minutes. Encapsulated flavors remain incorporated in the gum base longer because the molecules that they are encapsulated in are more easily held within the gum matrix. Finally, during the last phase of

the chew, softeners such as corn syrup and glycerin and other textural modifiers are dissolved, resulting in a firming up of the gum and the end of the chew.

Studies have shown that gum flavor is perceived better in the presence of sweetener. Companies have started to create chemical systems in gum so that the sweetener and flavor release together in a controlled manner during chewing.

Cooling sensation

A cooling sensation is achieved through the chemical phenomenon of the negative enthalpy of dissolution that occurs with bulk sweeteners, such as the sugar alcohols. The enthalpy of dissolution refers to the overall amount of heat that is absorbed or released in the dissolving process. Because the bulk sweeteners absorb heat as they dissolve and have a negative enthalpy, they yield a cooling sensation as they are dissolved in a consumer's saliva.

Health effects

Brain function

A review about the cognitive advantages of chewing gum by Onyper et al. (2011) found strong evidence of improvement for the following cognitive domains: working memory, episodic memory and speed of perception. However the improvements were only evident when chewing took place prior to cognitive testing. The precise mechanism by which gum chewing improves cognitive functioning is however not well understood. The researchers did also note that chewing-induced arousal could be masked by the distracting nature of chewing itself, which they named "dual-process theory", which in turn could explain some of the contradictory findings by previous studies. They also noticed the similarity between mild physical exercise such as pedaling a stationary bike and chewing gum. It has been demonstrated that mild physical exercise leads to little cognitive impairment during the physical task accompanied by enhanced cognitive functioning afterwards. Furthermore, the researchers noted that no improvement could be found for verbal fluency, which is in accordance with previous studies. This finding suggests that the effect of chewing gum is domain specific. The cognitive improvements after a period of chewing gum have been demonstrated to last for 15–20 minutes and decline afterwards.

Dental health

Sugar-free gum sweetened with xylitol has been shown to reduce cavities and plaque. The sweetener sorbitol has the same benefit, but is only about one-third as effective as xylitol. Other sugar substitutes, such as maltitol, aspartame and acesulfame K, have also been found to not cause tooth decay. Xylitol is specific in its inhibition of Streptococcus mutans, bacteria that are significant contributors to tooth decay. Xylitol inhibits Streptococcus mutans in the presence of other sugars, with the exception of fructose. Xylitol is a safe sweetener that benefits teeth and saliva production because, unlike most sugars, it is not fermented to acid. Daily doses of xylitol below 3.44 grams are ineffective and doses above 10.32 grams show no additional benefit. Other active ingredients in chewing gum include fluoride, which strengthens tooth enamel, and p-chlorbenzyl-4-methylbenzylpiperazine, which prevents travel sickness. Chewing gum also increases saliva production.

Food and sucrose have a demineralizing effect upon enamel that has been reduced by adding calcium lactate to food. Calcium lactate added to toothpaste has reduced calculus formation. One study has

shown that calcium lactate enhances enamel remineralization when added to xylitol-containing gum, but another study showed no additional remineralization benefit from calcium lactate or other calcium compounds in chewing-gum.

Other studies indicated that the caries preventive effect of chewing sugar-free gum is related to the chewing process itself rather than being an effect of gum sweeteners or additives, such as polyols and carbamide. A study investigated the in situ effect of casein phosphopeptide–amorphous calcium phosphate (CPP–ACP) found that its incorporation into a sugar-free gum increases the remineralization / protection of eroded enamel surface significantly.

Gum chewing is regarded as a helpful way to cure halitosis (bad breath). Chewing gum not only helps to add freshness to breath but can aid in removing food particles and bacteria associated with bad breath from teeth. It does this by stimulating saliva, which essentially washes out the mouth. Chewing sugar-free gum for 20 minutes after a meal helps prevent tooth decay, according to the American Dental Association, because the act of chewing the sugar-free gum produces saliva to wash away bacteria, which protects teeth. Chewing gum after a meal replaces brushing and flossing, if that's not possible, to prevent tooth decay and increase saliva production. Chewing gum can also help with the lack of saliva or xerostomia since it naturally stimulates saliva production. Saliva is made of chemicals, such as organic molecules, inorganic ions and macromolecules. 0.5% of saliva deals with dental health, since tooth enamel is made of calcium phosphate, those inorganic ions in saliva help repair the teeth and keep them in good condition. The pH of saliva is neutral, which having a pH of 7 allows it to remineralize tooth enamel. Falling below a pH of 5.5 (which is acidic) causes the saliva to demineralize the teeth.

Masumoto et al. looked at the effects of chewing gum after meals following an orthodontic procedure, to see if chewing exercises caused subjects pain or discomfort, or helped maintain a large occlusal contact area. 35 adult volunteers chewed gum for 10 to 15 minutes before or after three meals each day for 4 weeks. 90% of those questioned said that the gum felt "quite hard", and half reported no discomfort.

Use in surgery

Several randomized controlled studies have investigated the use of chewing gum in reducing the duration of post-operative ileus following abdominal and specifically gastrointestinal surgery. A systematic review of these suggests gum chewing, as a form of "sham feeding", is a useful treatment therapy in open abdominal or pelvic surgery, although the benefit is less clear when laparoscopic surgical techniques are used.

Chewing gum after a colon surgery helps the patient recover sooner. If the patient chews gum for fifteen minutes for at least four times per day, it will reduce their recovery time by a day and a half. The average patient took 0.66 fewer days to pass gas and 1.10 fewer days to have a bowel movement. Saliva flow and production is stimulated when gum is chewed. Gum also gets digestive juices flowing and is considered "sham feeding". Sham feeding is the role of the central nervous system in the regulation of gastric secretion.

Stomach

Chewing gum is used as a novel approach for the treatment of gastroesophageal reflux disease (GERD). One hypothesis is that chewing gum stimulates the production of more bicarbonate-containing saliva and increases the rate of swallowing. After the saliva is swallowed, it neutralizes

acid in the esophagus. In effect, chewing gum exaggerates one of the normal processes that neutralize acid in the esophagus. However, chewing gum is sometimes considered to contribute to the development of stomach ulcers. It stimulates the stomach to secrete acid and the pancreas to produce digestive enzymes that aren't required. In some cases, when consuming large quantities of gum containing sorbitol, gas and/or diarrhea may occur.

CHECK YOUR PROGRESS

Discuss the concept of chewing gum.
Describe the history of chewing gum.
Discuss the nature of gum base.
Describe the manufacturing process of chewing gum.
Discuss the quality and safety of chewing gum.
Describe the physical and chemical charecteristics of chewing gum.
Discuss the bubble blowing capability of a chewing gum.
Describe the chewiness of a chewing gum.
Describe the stickiness of a chewing gum.
Describe the flavor release process of a chewing gum.
Describe the cooling sensation offered by a chewing gum.
Describe the health effects of a chewing gum.
Describe the effect of consuming a chewing gum on brain functions.
Describe the effect of consuming a chewing gum on dental health.
Describe the effect of consuming a chewing gum on post-operative process.
Describe the effect of consuming a chewing gum on treatment of gastroesophageal reflux disease.

3.09 SOUTH ASIAN SWEETS

https://en.wikipedia.org/wiki/South_Asian_sweets

South Asian sweets are the confectionery and desserts of the Indian subcontinent. Thousands of dedicated shops in India, Pakistan, Bangladesh, Nepal and Sri Lanka sell nothing but sweets.

Sugarcane has been grown in the Indian subcontinent for thousands of years, and the art of refining sugar was invented there 8000 years ago in 6000 BCE Indus Valley Civilisation. The English word sugar comes from a Sanskrit word sharkara for the refined sugar, while the word candy comes from Sanskrit word khaanda for the unrefined sugar– one of the simplest raw forms of sweet. Over its long history, cuisines of the Indian subcontinent developed a diversified array of sweets. Some claim there is no other region of the world where sweets are so varied, so numerous, or so invested with meaning as the Indian subcontinent.

In the diverse languages of the Indian subcontinent, sweets are called by numerous names, one common name being Mithai (मिठाई). They include sugar, and a vast array of ingredients such as different flours, milk, milk solids, fermented foods, root vegetables, raw and roasted seeds, seasonal fruits, fruit pastes and dry fruits. Some sweets such as kheer are cooked, some like burfi are baked,

varieties like Mysore pak are roasted, some like jalebi are fried, others like kulfi are frozen, while still others involve a creative combination of preparation techniques. The composition and recipes of the sweets and other ingredients vary by region. Mithai are sometimes served with a meal, and often included as a form of greeting, celebration, religious offering, gift giving, parties, and hospitality in the Indian subcontinent. On South Asian festivals – such as Holi, Diwali, Eid, or Raksha Bhandan – sweets are homemade or purchased, then shared. Many social gatherings, wedding ceremonies and religious festivals often include a social celebration of food, and the flavors of sweets are an essential element of such a celebration.

History

Ancient Sanskrit literature from India mention feasts and offerings of mithas (sweet). One of the more complete surviving texts, with extensive description of sweets and how to prepare them is the Mānasollāsa (Sanskrit: मानसोल्लास; meaning in Sanskrit, the delight of an idea, or delight of mind and senses). This ancient encyclopedia on food, music and other Indian arts is also known as the Abhilaṣitārtha Cintāmaṇi (the magical stone that fulfils desires). Mānasollāsa was composed about 1130 CE, by the Hindu King Somesvara III. The document describes meals that include a rice pudding which are called payasam (Sanskrit: पायसं) are in modern Pakistani and Indian languages is called kheer. The document mentions seven kinds of rice.

Mānasollāsa also describes recipes for golamu as a donut from wheat flour and scented with cardamom, gharikas as a fried cake from black gram flour and sugar syrup, chhana as a fresh cheese and rice flour fritter soaked in sugar syrup that the document suggests should be prepared from strained curdled milk mixed with buttermilk, and many others. Mānasollāsa mentions numerous milk-derived sweets, along with describing the 11th century art of producing milk solids, condensed milk and methods for souring milk to produce sweets.

The origin of sweets in Indian subcontinent has been traced to at least 500 BCE, where records suggest both raw sugar (gur, vellam, jaggery) as well as refined sugar (sarkara) were being produced. By 300 BCE, kingdom officials in India were including five kinds of sugar in official documents. By the Gupta dynasty era (300–500 CE), sugar was being made not only from sugar cane, but other plant sources such as palm. Sugar-based foods were also included in temple offerings, as bhoga for the deities, which after the prayers became Prasād for devotees, the poor or visitors to the temple.

Varieties (in alphabetical order)

Barfani toda

Barfi is a sweet, made from milk solids (khoya) or condensed milk and other ingredients like ground cashews or pistachios. Some barfi use various flours such as besan (gram flour). Barfi may be flavored with pastes or pieces of fruits such as mango, banana, berries, coconut. They may include aromatic spices such as cardamom and rose water to enhance the sensual impact while they are consumed.

Sometimes a thin inert silver or gold layer of edible foil is placed on top face of burfi for an attractive presentation. Gold and silver are approved food foils in the European Union, as E175 and E174 additives respectively. The independent European food-safety certification agency, TÜV Rheinland, has deemed gold leaf safe for consumption. Gold and silver leaf are certified kosher. These inert metal foils are neither considered toxic to human beings nor the broader ecosystem.

Fig 3.50: Matka Kulfi, flavoured frozen sweet dish made from milk.
https://commons.wikimedia.org/wiki/File:Matkakulfi.jpg#/media/File:Matkakulfi.jpg

Fig 3.51: Sel Roti
https://commons.wikimedia.org/wiki/File:Sel_Roti.jpg#/media/File:Sel_Roti.jpg

Fig 3.52: Nollen Sandesh
https://commons.wikimedia.org/wiki/File:Sondeshnolen.jpg#/media/File:Sondeshnolen.jpg

Cham-cham

Cham Chams are prepared from flattened paneer (a form of curdled milk solids, cheese) sweetened in syrup.

Chhena Murki

Chhena murki, or chenna murki, is a sweet made from an Indian version of cottage cheese, milk and sugar in many states such as Odisha. Milk and sugar are boiled to a thick consistency. Round, cubes, cuboid or other shapes of cottage cheese are soaked in the milky condensate It basically started from coastal areas in the district of Bhadrak and nowadays it is available in all parts of Odisha. Other flavors and aromatic spices are typically added. It is also known by Bangladeshi and Guyanese people as pera.

Chhena Poda

Chhena Poda is a cheese dessert from the state of Odisha in eastern India. 'Chhena poda' literally means 'burnt cheese' in Odia. It is made of well-kneaded homemade cottage cheese or chhena, sugar, cashew nuts and raisins, and is baked for several hours until it browns. The best quality of Chhena Poda is found in the localities of Nayagarh District in Odisha.This sweet is best taste when it is consumed within two days of preparation

Chikki

Chikki is a ready-to-eat solid, brittle sweet generally made from casting a mix of dry nuts and hot jaggery syrup. Peanuts and jaggery mix are most common. Other than almonds, cashews, walnuts, sesame and other seeds, varieties of chikki are also prepared from puffed or roasted Bengal gram, puffed rice, beaten rice, puffed seasonal grains, and regional produce such as Khobara (desiccated coconut). Like many Indian sweets, Chikki is typically a high protein delicacy.

Gajrela

Gajrela, also called Gajar halwa, is a seasonal pudding-like sweet made from carrot. It is popular in Punjab regions of India, agricultural belt of North India, now common in many parts of South Asia. It is made by slowly cooking carrot with ghee, concentrated and caramelized milk, mawa (khoya) and sugar; often served with a garnish of aromatic spices, almonds, cashews or pistachios. The recipes vary by region, and Gajrela may be cooked without ghee, then include cheese or other milk solids for sophisticated mix of flavors. It is common in Indian restaurants and is a seasonal street and cafe food during post-monsoon through spring festive celebrations.

Gajak

Gajak (Hindi: गजक; Punjabi: ਗਚਕ gachak) is a well-known dessert or confection originating in the

Bhind-Morena region of Madhya Pradesh, where it is most commonly consumed in the winter months. It is a dry sweet made of sesame seeds (til) or peanuts and jaggery. The til is cooked in the raw sugar syrup and set in thin layers, which can be stored for months.

Gulab jamun

Fig 3.53: Almora Bal Mithai, Uttarakhand, India
https://commons.wikimedia.org/wiki/File:Bal_mithai.jpg#/media/File:Bal_mithai.jpg

Fig 3.54: Almond, sugar and milk solids (Khoa or Khoya) are the basis for preparing some confection in India's extremely diverse sweets collection. Above is an assortment of burfi/burfees in a Mumbai, India shop.
https://commons.wikimedia.org/wiki/File:Almond_Khoa_based_burfi_Mumbai_India.jpg#/media/File:Almond_Khoa_based_burfi_Mu

Fig 3.55: Slices of Chhena Poda
https://commons.wikimedia.org/wiki/File:Chennapoda.jpg#/media/File:Chennapoda.jpg

Gulab jamun is a common sweet found in the Indian subcontinent. It is made out of fried chenna (milk solids and cheese) balls soaked in sweet rose-water flavoured syrup.

Jalebi or imarti

Jalebi is made by deep-frying a fermented batter of wheat flour with yoghurt, in a circular (coil-like) shape and then soaking it in sugar syrup. Imarti is a variant of Jalebi, with a different flour mixture and has tighter coils. Typically Jalebi is brown or yellow, while Imarti is reddish in colour. Often taken with milk, tea, yogurt or Lassi. In classical Sanskrit literature, jalebis have been referred to as kundalika or jalavallika.

Khaja

Khaja is a sweet of India. Refined wheat flour, sugar, and oils are the chief ingredients of khaja.

It is believed that, even 2000 years ago, Khajas were prepared in the southern side of the Gangetic Plains of Bihar. These areas which are home to khaja, once comprised the central part of Maurya and Gupta empires. Presently, Khajas are prepared and sold in the city of Patna, Gaya and several other places across the state of Bihar. Khajas of the Silao and Rajgir are known for their puffiness.

Khajas have traveled to some other parts of India and Pakistan, including Andhra Pradesh and Odisha. Khaja of Kakinada, a coastal town of Andhra Pradesh is very much famous in South India and Orissa. This Khaja is dry from outside and full of sugar syrup from inside and is juicy. Khaja of Puri is also very famous. At first, the batter is of wheat flour, mawa and oil. It is then deep fried until crisp. Then a sugar syrup is made which is known as "pak". The crisp croissants are then soaked in the sugar syrup until they absorb the sugar syrup.

Kulfi

Kulfis are traditional South Asian ice-cream, where flavored milk is first condensed and caramelized by slow cooking in presence of a small quantity of rice or seasonal grain flour; once condensed, dry nut pastes and aromatic spices are added, the mix frozen in small earthen or metal cans. This creates one of the densest known form of frozen sweets; it is typically served between −10 to −15 C when they are easier to spoon and eat. It comes in a variety of flavours such as mango, kesar, pistachios, badam (almond), coconut and plain. It is also a street side urban as well as rural India summer time snack and festive sweet, where food hawkers carry around frozen mounds of kulfi in a big earthen pot and play a particular horn music to attract customers. These vendors are known as "kulfiwalla" (one who sells kulfi).

Kheer, Phirni or Payas

Phirni and Kheer are two of the most popular puddings in Pakistan and India.

Kheer is a pudding, usually made from milk, sugar and one of these ingredients – vermicelli, rice, Bulgar wheat, semolina, tapioca, dried dates, and shredded white gourd. It is also known as "Payas". While Phirni is a popular variant of kheer.

As sweet rice pudding, payas has been a cultural dish throughout the history of India and Pakistan, being usually found at ceremonies, feasts and celebrations. In many parts of India, ancient traditions maintain that a wedding is not fully blessed if payas (or payasam as known in South India) is not served at the feast during traditional ceremonies like marriage, childbirth, annaprasan (first solid feed

to child), and other occasions. Other than sweet yoghurt, some families include kheer in the last meal, as hospitality and auspicious food, before a family member or guest departs on a long journey away from the home.

Laddu

Laddu (sometimes transliterated as laddoo or laadu) is made of varieties of flour, grains, pulses, semolina, regional or seasonal fruits, dry fruits, and other ingredients cooked with sugar, then shaped into bite-size or larger spheres. Laddu is mentioned in ancient Sanskrit documents as temple offerings, and is referred to as Ladduka. They are popular all over India, easy to prepare, and come in dozens of varieties. Laddu is often made to celebrate festivals, religious ceremonies, or household events such as weddings.

One example of laddu is Motichoor Ka Ladoo. It is a sweet food in states like Bihar, made from roasted gram flour flakes which are sweetened, mixed with almonds, rolled into a batter which is then cast into mini balls and fried in ghee. Every mini ball called 'boondi' has enough sugar that melts like a fresh sweet. The mini balls are then combined with aromatic spices and then formed into bite-size spheres, which are called Motichoor Ka Ladoo. When bit, the mini balls distribute over the tongue for a burst of flavors throughout the mouth. Other examples include Tirupati Laddu so popular that over a million Laddu are distributed every week from a single temple of Lord Venkateswara.

Malpoa

Malpoa is homemade sweets of India. It is a form of pancake (made of wheat or rice flour) deep fried and sugar syrup.

Narkel/Narkol Naru

Narikel Naru is a laddu shaped sweet from Bengal . They are ball-shaped and made from khoa/condensed milk and coconut, a traditional food during Kojagori Lakshmi Puja, Poush Parbon (Makar Sankranti) and several other occasions.

Parwal Ki Mithai

Parwal Ki Mithai is a dry sweet made of the vegetable parwal, a kind of gourd. The shell of parwal is filled with milk solids, then cooked. It is rather popular in Bihar, but also found in Uttar Pradesh and West Bengal.

Pathishapta

Pathishapta is a Bengali dessert. The final dish is a rolled pancake that is stuffed with a filling often made of coconut, milk, cream, and jaggery from the date palm. These desserts are consumed in Thailand as well.

Rajbhog

Rasgulla is a popular sweet in South Asia. They come in many forms, such as Kamalabhog (Orange Rasgulla), Rajbhog which is stuffed with dry fruits and khoa inside, Kadamba often served with kheer, Rasamundi, Raskadamba, and others. Some are white, others cream, brown, gold or orange colored. They are called Rasbari in Nepal. This dish is made by boiling small dumplings of chhenna and semolina mixture in sugar syrup. Once cooked, these are stored in the syrup making them spongy.

Increasing the semolina content reduces the sponginess and hardens them, creating variety of textures. Some Rasgulla are stuffed inside with treats, such as dry fruits, raisins, candied peel and other delicacies to create a series of flavors experienced as they are consumed. Some versions, called danedhar, are removed from syrup and sugar coated into shapes of fruits and other creative designs. These are festive foods found year-round, in many parts of India.

Ras Malai

Ras malai or rosh malai is a dessert eaten in Pakistan, India and Bangladesh. The name ras malai comes from two words in Urdu/Hindi: ras, meaning "juice", and malai, meaning "cream". It has been described as "a rich cheesecake without a crust. Ras malai consists of sugary white, cream or yellow-coloured (or flattened) balls of paneer soaked in malai (clotted cream) flavoured with cardamom.

A variety of Indian sweets

Sandesh is a sweet made from fine cheese made from cow's milk kneaded with fine ground sugar or molasses. This is a sweet from West Bengal and Odisha. Revered for its delicate making, and appreciated by the connoiseur, this represents sweet making at its finest. Sandesh comes in two varieties, "Norom Pak" (the softer version) and "Koda Pak" (the harder version). The softer version although more gentle and considered better, is fragile. The harder version is robust and often easier for storage. Molasses made from dates can be used to make a special variation of Sandesh called "Noleen Gurher Sandesh" (a Sandesh made from "Noleen Gurh" or molases from dates) or simply "Noleen Sandesh".

Sel Roti

Sel roti is a Nepali home-made circular-shaped bread or rice donut, prepared during Tihar, a widely celebrated Hindu festival in Nepal. It is made of rice flour with adding customized flavors. A semi liquid rice flour dough is usually prepared by adding milk, water, sugar, butter, cardamom, cloves and other flavors of personal choice.

Shrikhand

Shrikhand is a creamy dessert made out of strained yogurt, from which water is drained off completely. Dry fruits, mango puree, saffron or cardamom and sugar are added to the thick yoghurt to get the desired flavour and taste. It is served chilled. It is a West Indian traditional dish.

Other sweets

Other traditional Indian sweets and desserts famous throughout the history of Indian food include:

Mysore pak (a dessert made out of ghee, sugar and chick pea flour),
Halwa (or Halva in modern English spelling); made out of flour, butter and sugar
Jangiri
Jhajariya
Dharwad pedha
Karadantu

CHECK YOUR PROGRESS

Explain the various south Asian sweets.
Elaborate the history of south Asian sweets.
Explain the variety of South Asian sweets.

3.10 END QUESTIONS

The following questions should help you prepare for the End Examinations. These questions are for 5 marks each and should take you 11 minutes under examination conditions.

1. Describe the basic concept of confectionery
2. Discuss the types of confectionery
3. Describe the history of confectionery
4. Discuss the various sweetening agents used in confectionery
5. Discuss the concept of baker's confectionery
6. Describe the various types of baker's confections.
7. Discuss the various types of cakes.
8. Describe the various types of pastries.
9. Discuss the concept of sugar confectionery.
10. Discuss how confectioney items are classified.
11. Describe the various types of sugar confections.
12. Discuss the storage and shell life of confections.
13. Discuss the cultural roll of confectionery items.
14. Describe the nutrional value of confections.
15. Describe the risk involved in use of confections.
16. Explain the concepts in candy making.
17. Elaborate the histry of candies.
18. Explain the nature of hard candy.
19. Elaborate the importance of sugar concentration on texture of candy.
20. Explain the various soft candy types.
21. Elaborate the concept of cotton candy.
22. Explain the nature of mashmallows.
23. Explain the concept of chocolatiering.
24. Elaborate the various tools and machinery used in making candy.
25. Describe the concept of toffee.
26. Discuss the process of creation of toffee.
27. Describe the variations and applications of toffee.
28. Explain the concept of icecream.
29. Explain how ice creams are produced.
30. Elaborate the retail sale of ice cream.
31. Explain the various specialized jobs in ice cream industry.
32. Elaborate the ingredients and standard quality definitions in ice cream.
33. Explain the various physical properties of ice cream.
34. Elaborate the concept of Ostwald ripening.
35. Explain the various types of ice creams around the world.

36. Elaborate the concept of ice cream cone.
37. Explain the nature of some frozen desserts.
38. Elaborate the use of cryogenics in ice cream.
39. Describe the concept of chikki.
40. Discss the ingredients used in making chikkis.
41. Describe the process of preparation of chikkis.
42. Explain the concept of dragée.
43. Elaborate the use of dragée.
44. Explain the concept of Jordan almonds.
45. Elaborate the concept of panned chocolate.
46. Explain the concept of medicinal dragée.
47. Explain the metallic decorative balls.
48. Discuss the concept of chewing gum.
49. Describe the history of chewing gum.
50. Discuss the nature of gum base.
51. Describe the manufacturing process of chewing gum.
52. Discuss the quality and safety of chewing gum.
53. Describe the physical and chemical charecteristics of chewing gum.
54. Discuss the bubble blowing capability of a chewing gum.
55. Describe the chewiness of a chewing gum.
56. Describe the stickiness of a chewing gum.
57. Describe the flavor release process of a chewing gum.
58. Describe the cooling sensation offered by a chewing gum.
59. Describe the health effects of a chewing gum.
60. Describe the effect of consuming a chewing gum on brain functions.
61. Describe the effect of consuming a chewing gum on dental health.
62. Describe the effect of consuming a chewing gum on post-operative process.
63. Describe the effect of consuming a chewing gum on treatment of gastroesophageal reflux disease.
64. Explain the various south Asian sweets.
65. Elaborate the history of south Asian sweets.
66. Explain the variety of South Asian sweets.

3.11 REFERENCES

1. https://en.wikipedia.org/wiki/Confectionery
2. https://en.wikipedia.org/wiki/Candy_making
3. https://en.wikipedia.org/wiki/Toffee
4. https://en.wikipedia.org/wiki/Ice_cream
5. https://en.wikipedia.org/wiki/Chikki
6. https://en.wikipedia.org/wiki/Drag%C3%A9e
7. https://en.wikipedia.org/wiki/Chewing_gum
8. https://en.wikipedia.org/wiki/South_Asian_sweets

UNIT 4 : PREPARING CONFECTIONERY ITEMS

4.00 BEFORE WE BEGIN

In this course we have studied the concepts of bakery and confectionery. In the first unit, we studied concepts of bakery and various bakery items. In the second unit, we studied preparation of the various bakery items. In the third unit, we studied concepts of confectionery and various confectionery items. In the fourth unit, we will study preparation of the various confectionery items.

4.01 UNIT OBJECTIVES

After studying this unit you will be able to

- Explain the ways to make eggless apple pie.
- Elaborate how ginger apple pie can be made.
- Explain the ways to make Double Pie Crust.
- Elaborate how Custard pie can be made.
- Explain the ways to make Lime chiffon pie.
- Discuss how cheese biscuit can be made.
- Describe the methods of making cheese straw.
- Discuss how potato sticks can be made.
- Describe the methods of making khara biscuits.
- Explain the difference between cookies and biscuits.
- Elaborate the process of making chocolate chip cookies.
- Explain how biscuit press cookies can be made.
- Elaborate the process of making peanut butter cookies
- Explain how bird's nest cookies can be made.
- Discuss how lollipops can be made.
- Describe the methods of making rock candy.
- Discuss how butterscotch candy can be made.
- Describe the methods of making vegan mashmallow.
- Discuss how crème de menthe can be made.
- Describe the methods of making organic chocolate panna cotta with crème de menthe jelly.
- Discuss how chocolate fudge can be made.
- Discuss how toffee can be made.

4.02 PIES

Eggless Apple pie

Fig 4.01: Eggless apple pie

https://www.tarladalal.com/Eggless-Apple-Pie-34168r

You'll need

For The Short Crust Pastry

- 3 cups plain flour (maida)
- 150 gms butter
- 2 tbsp brown sugar
- 1 cup milk

For The Apple Filling

- 10 apples , cored , peeled and cut into cubes
- 1 tsp cinnamon (dalchini) powder
- 1 1/2 cups sugar
- 1/2 cup apple juice
- 2 tbsp bread crumbs

Other Ingredients

- 1 tbsp butter

How to do it?

For the shortcrust pastry

- Combine the butter and plain flour in a bowl, rubbing the mixture with the palms of your hand, so that small lumps are made.

- Add the sugar milk, and enough water and knead into a dough. The dough should be like that of puri.
- Cover the dough with moist muslin cloth for 5-10 minutes.
- Take 2/3rd of the dough, and roll out to make a big chapati of this dough.
- Line the 9" pie tin with the chapati and trim the edges. Take a fork and prick the pastry at the certain intervals of gaps.
- Bake the pastry in a pre-heated oven at 150 degree Celsius for 10 minutes.
- The pastry should be about half baked. Keep aside.

For the Apple Filling

- Heat the butter in a pan, add the apples, and saute till they turn little soft on a slow flame.
- Add the sugar, apple juice and cinnamon, mix well and cook for 5 minutes.
- The apple should be half soft and should be releasing lots of juices.
- Add the bread crumbs and mix well, remove from the flame keep aside.

How to Proceed

- In a semi baked pastry, add the apple filling and spread it evenly.
- Roll out the chapati from the remaining dough. You can either cut strips of this and make a wire mesh for the pie or keep it whole and just cover the pie.
- Spread little butter on top of the pie.
- Bake in the preheated oven at 180 degrees Celsius for 15 minutes.
- Remove from the mould and serve hot with a scoop of vanilla ice-cream.

Ginger apple pie

Fig 4.02: Ginger apple pie

http://www.eatingwell.com/recipe/251064/maple-ginger-apple-pie/

You'll need:

(10 servings)

Butter Pastry Dough

- 2¼ cups all-purpose flour
- ¾ teaspoon salt
- 12 tablespoons cold unsalted butter (1½ sticks), cut into chunks
- 4-5 tablespoons ice water

Filling

- 8 cups peeled and thinly sliced apples (6-8 apples), a mix of sweet and tart
- Cherry Pie Filling Or Topping 20 Oz
- ¼ cup all-purpose flour
- ¼ cup pure maple syrup
- Finely grated zest of 1 lemon
- 2 teaspoons ground cinnamon
- O Organics Organic Ground Cinnamon 1.5 Oz
- 1 teaspoon grated fresh ginger
- ½ teaspoon salt
- 1 large egg, beaten
- Sugar for sprinkling (optional)
- Whipped cream (optional)

How to do it?

Time: Active 1 h , Ready In 3 h 15 m

1. To prepare crust: Mix flour and salt in a large bowl or food processor. Work butter into the flour mixture using a pastry blender or two knives or by pulsing in the food processor until it's pebble-sized. Add ice water, 1 tablespoon at a time, until the dough is evenly moist (but not wet) and is just starting to clump together, being careful not to overmix. Divide dough into 2 pieces and pat each into a 5-inch disk. Wrap with plastic and refrigerate for at least 1 hour and up to 2 days. Remove from the refrigerator about 15 minutes before rolling out.
2. To prepare filling & bake pie: Preheat oven to 400°F.
3. Roll one portion of dough between sheets of parchment paper into a 12-inch circle. Peel off the top sheet and invert the dough into a 9-inch pie pan (not deep-dish). Remove the second sheet.
4. Toss apples in a large bowl with flour, maple syrup, lemon zest, cinnamon, ginger and salt until evenly coated. Spoon the apple mixture into the crust. Roll the second portion of dough between the sheets of parchment into a 13-inch circle. Peel off the top sheet and invert the dough onto the fruit. Peel off the remaining sheet. Tuck the top crust under the bottom crust, sealing the two together. Flute the edge of the crust with your fingers or crimp with a fork. Brush the crust with egg, cut several slits in the top and sprinkle with sugar (if using).

5. Place the pie on a baking sheet to catch any drips. Bake for 20 minutes.
6. Reduce oven temperature to 325 degrees . Continue baking until the crust is golden and the filling is bubbling, 50 minutes to 1 hour more.
7. Let cool completely on a wire rack before serving. Serve with whipped cream, if desired.

Make Ahead Tip: Prepare pastry dough (Step 1) and refrigerate for up to 2 days. Loosely cover pie and store at room temperature for up to 1 day.

Double Pie Crust

Fig 4.03: Double Pie Crust

http://everydaydishes.com/simple-food-recipes/homemade-double-pie-crust/

(You may use it in various pie recipes like the custard pie)

What you'll need:

- 3 cups all-purpose flour
- 1/4 tsp sugar
- 1 tsp salt
- 1 cup oil
- 1/2 cup water, cold

Let's do it.

1. Add flour, sugar and salt to a medium-sized mixing bowl then stir to combine.

2. DoubleAdd oil and water then mix together until dough forms (the dough should feel oily). Divide dough in half then shape into 2 balls. Wrap in plastic wrap then allow to rest at least 5-10 minutes.
3. Roll out one dough ball between 2 sheets of wax paper (use masking tape to secure wax paper to your counter to keep it from sliding around). Once the dough's rolled, simply place it in the pie pan and use a butter knife to trim off excess dough that hangs over the edge. Refrigerate until ready to fill and bake.
4. Fill the raw pie crust with your favorite filling then repeat step 3 with the second dough ball. Lay flattened dough over the top of the filling, crimping or fluting the edges and trimming off excess dough. Be sure to cut slits in the top crust to let steam escape during baking.
5. Bake your pie according to the recipe directions. Serve with plenty of whipped cream (dairy or dairy-free) and enjoy!

Custard pie

Fig 4.04: Clasic Custard Pie

http://everydaydishes.com/simple-food-recipes/classic-custard-pie-recipe/

What you'll need:

- 1 pie crust, deep-dish store-bought
- 5 large eggs
- 3 cups whole milk
- 1 Tbsp pure vanilla extract
- 1 cup granulated sugar
- 1/4 tsp salt
- 1 sprinkle nutmeg, cinnamon or mace

Let's do it.

1. Beat eggs in a large mixing bowl with vanilla, sugar and salt then stir in milk.
2. Pour mixture through a strainer into an unbaked pie crust and sprinkle with your choice of spice.
3. Bake at 425 degrees for 10 minutes then lower the heat to 325 degrees and continue to bake for 50-55 minutes. The edges will be set but the center will still be wiggly. Do not allow filling to bubble.
4. Chill 4 hours or overnight.

Lime chiffon pie

Fig 4.05: No-Bake Lime Chiffon Pie
https://www.bettycrocker.com/recipes/no-bake-lime-chiffon-pie/8e3405b8-4a51-48d5-adda-bc7544af366e

You'll need:

- 1/3 cup lime juice
- 1 envelope unflavored gelatin (2 teaspoons)
- 1 teaspoon grated lime peel
- 1/2 cup fat-free sweetened condensed milk (from 14-oz can)

- 2 drops green food color, if desired
- 1 drop yellow food color, if desired
- 4 cups Cool Whip™ fat-free frozen whipped topping, thawed (from 12-oz container)
- 1 graham cracker crumb crust (6 oz)
- 2 thin lime slices, cut into quarters, if desired

How to do?

- In 1-quart saucepan, place lime juice; sprinkle with gelatin. Let stand 1 minute to soften. Heat over medium heat about 2 minutes, stirring occasionally, until gelatin is dissolved. Remove from heat; cool slightly. Stir in lime peel.
- In medium bowl, mix condensed milk and food colors. Stir in lime juice mixture. Using rubber spatula, fold in all but 1/4 cup of the whipped topping. Spread in pie crust, smoothing top. Cover; refrigerate at least 2 hours or until firm.
- Before serving, garnish pie with remaining 1/4 cup whipped topping and lime slices.

CHECK YOUR PROGRESS

- Explain the ways to make eggless apple pie.
- Elaborate how ginger apple pie can be made.
- Explain the ways to make Double Pie Crust.
- Elaborate how Custard pie can be made.
- Explain the ways to make Lime chiffon pie.
-

4.03 BISCUITS

Cheese biscuit

Fig 4.06: Chhese Biscuits
http://www.geniuskitchen.com/recipe/quick-cheese-biscuits-oamc-217263

You'll need:

- 1 cup flour
- 1 1⁄4 teaspoons baking powder
- 1⁄2 teaspoon salt
- 1⁄2 cup low-fat cheese, grated
- 2 tablespoons butter
- 2⁄3 cup milk

How to do?

- Preheat oven to 450°F.
- Combine flour, baking powder and salt.
- Stir in cheddar.
- Cut in butter using pastry blender or 2 knives until coarse crumbs form.
- Using fork, stir milk into flour mixture until a soft dough forms.
- Do not overwork or overmix dough.
- Drop dough in heaping tablespoonfuls, 1in apart on ungreased baking sheet.
- Bake 15 minutes.

Cheese straw

Fig 4.07: Cheese straw
https://www.allrecipes.com/recipe/22857/cheese-straws/

You'll need:

- 1/2 cup butter, softened
- 4 cups shredded Cheddar cheese

- 2 cups all-purpose flour
- 1 teaspoon salt
- 1/4 teaspoon ground red pepper (optional)

How to do?

- Preheat oven to 400 degrees F (200 degrees C). Grease a cookie sheet.
- In a large bowl cream butter and cheese. Stir in flour and salt; mix well. On a lightly floured surface, roll the dough out to 1/2 inch in thickness. Cut into 2 inch strips and sprinkle with ground red pepper. Place strips on prepared cookie sheet(s) 1 1/2 inches apart.
- Bake in preheated oven for 10 to 15 minutes, or until crisp.

Potato sticks

Fig 4.08: Baked Potato Sticks
https://www.allrecipes.com/recipe/13517/baked-sweet-potato-sticks/?internalSource=hub%20recipe&referringContentType=search%20results&clickId=cardslot%201

You'll need:

- 6 medium baking potatoes
- 9 tablespoons butter, melted
- 1 1⁄2 teaspoons salt
- 1 teaspoon fresh ground black pepper

How to do?

- Preheat oven to 400 degrees F. Scrub and quarter potatoes. Melt butter in a 9- by 12-inch ovenproof baking dish in oven.

- Place potato quarters in dish and turn to coat with melted butter; arrange potatoes cut side down and sprinkle with salt and pepper. Bake until tender when pierced with a sharp knife (30 to 35 minutes).

Khara biscuit

Healthy Khara Biscuits are savory Indian style spicy egg free whole wheat flour biscuits/cookies tinged with the spicy flavors of ginger, cilantro, jalapenos and hing/asafetida. They come out so flaky and buttery, you would love to munch on it with a cup of your evening coffee or tea or even as a mid morning snack.

Fig 4.09: Khara biscuits
https://www.curryandvanilla.com/healthy-khara-biscuitsindian-spiced-savory-cookies/

You'll need:

- ¾ cup plus 2 tablespoons whole wheat flour
- ½ cup maida/all-purpose flour
- 2 tablespoons cornflour
- 1 teaspoon baking powder
- ¼ teaspoon hing/asafetida
- ¼ teaspoon turmeric powder
- ¾ teaspoon salt
- 1 teaspoon powdered sugar
- ½ cup butter, softened to room temperature

- 3 to 4 green chilis/jalapenos
- 3 tablespoons coriander leaves
- 2 tablespoons curry leaves
- 1 inch piece ginger
- 1 to 2 teaspoons yogurt
- Extra flour for dusting

How to do?

- In a small blender jar, make a paste of green chilies, coriander leaves, curry leaves and ginger. You can choose to make a fine paste or leave it coarse; I love to see the bits of green herbs in my cookies, so I made a coarse paste.
- In a large bowl, sift all purpose flour, whole wheat flour, corn flour, salt, sugar, baking powder, turmeric powder and hing or mix with a wire whisk.
- Add softened butter along with the blended paste (not more than 2 tablespoons) and mix with your hands to a coarse breadcrumb like mixture.
- Add yogurt a teaspoon at a time till you get a smooth dough; do not make it too soft like chapatti dough. I added about 1 ½ teaspoons of yogurt.
- Cover and keep aside for about 30 minutes.
- After 30 minutes, preheat oven to 400 degrees Fahrenheit or 200 degrees Centigrade.
- Grease a baking pan lightly and keep aside.
- Make 2 portions of the dough.
- Roll one portion to a thin disc about ¼ inches in thickness.
- Using a cookie cutter, cut the dough into desired shapes, prick them with a fork (this prevents the cookie from puffing up while baking).and place them on the greased baking pan
- Bake at 200 degrees Centigrade for 15 to 20 minutes until the edges of the cookies start to brown.
- Remove from oven and gently place on cooling racks to cool completely.
- Continue with the rest of the dough.
- Cool completely and store leftovers in an airtight container.
- Enjoy crisp, buttery, healthy and spicy savory cookies with your evening chai/coffee, at your next party or as a mid morning snack.

Tip

For a flaky cookie, do not overwork the dough. Adjust the amount of green chillies, spices and herbs according to your taste. Adding turmeric powder is optional. For a slightly sweeter cookie, add a teaspoon or more of sugar.ou'll need:

CHECK YOUR PROGRESS

- Discuss how cheese biscuit can be made.
- Describe the methods of making cheese straw.
- Discuss how potato sticks can be made.
- Describe the methods of making khara biscuits.

4.04 COOKIES

Cookies are sweet, flat, baked goods, generally made of flour, eggs, sugar, and oil. Sometimes they can contain other ingredients like chocolate chips, nuts, raisins, etc. to enhance the flavour. The term cookie is mostly used in American English. In the UK, this product is known as biscuits.

Biscuit is a term used for an assortment of baked, mainly flour-based food products. They are either sweet or savoury. In British English, the term biscuit refers to a small, baked, unleavened cake, which is typically crisp, flat, and sweet.

Chocolate Chips cookies

Fig 4.10: Chocolate chip cookies
https://www.ihearteating.com/easiest-chocolate-chip-cookie-recipe/

You'll need:

- 1/2 cup (113 g) butter
- 1/2 cup (99 g) granulated sugar
- 1/4 cup (54 g) brown sugar packed
- 2 teaspoons vanilla extract
- 1 large egg
- 1 3/4 cups (210 g) all-purpose flour*
- 1/2 teaspoon baking soda

- 1/2 teaspoon kosher salt (Kosher salt, koshering salt, or kitchen salt is edible salt with a larger grain size than typical table salt and without common additives such as iodine.)
- 1 cup (170 g) semisweet chocolate chips

How to do it?

- Preheat the oven to 350 F.
- Microwave the butter for about 40 seconds. Butter should be completely melted but shouldn't be hot.
- In a large bowl, mix butter with the sugars until well-combined.
- Stir in vanilla and egg until incorporated.
- Add the flour, baking soda, and salt. Mix until just combined. Dough should be soft and a little sticky but not overly sticky.
- Stir in chocolate chips.
- Scoop out 1.5 tablespoons of dough (medium cookie scoop) and place on baking sheet.
- Bake for 7-10 minutes, or until cookies are set. They will be puffy and still look a little underbaked in the middle.**

Tips

- Be sure to fluff and then scoop and sweep to measure the flour. Too much flour will result in a dry or crumbly cookie.
- Don't over-bake the cookies, or you won't end up with soft cookies. Several people have said that they've needed to bake the cookies for longer. Since oven temps can vary, I suggest starting with the listed baking time and increasing the time as needed.

Biscuit Press Cookies

Fig 4.11: A cookie press

https://www.pamperedchef.com/shop/Bakeware/Cookie+Press+%26+Cutters/Cookie+Press/1526

You will need:

- 1 1⁄2 cups unsalted butter
- 1 cup sugar
- 2 large egg yolks
- 3 3⁄4 cups sifted all-purpose flour
- 1⁄4 teaspoon salt
- 1 tablespoon pure vanilla extract
- colored sanding sugar

How to do?

- Heat oven to 350°F.
- In a large bowl, cream butter and sugar until light and fluffy. Add egg yolks, flour, salt, and vanilla. Mix thoroughly.
- Fill a cookie press with the dough, and turn out cookies 1 to 2 inches apart onto an unbuttered baking sheet. Sprinkle cookies with colored sanding sugars.
- Bake until the cookies are lightly browned, 7 to 10 minutes. To ensure even baking, rotate sheet halfway through the baking process. Transfer to a wire rack, and let cool.

Fig 4.12: Using Biscuit Press or Cookie press
https://www.pamperedchef.com/shop/Bakeware/Cookie+Press+%26+Cutters/Cookie+Press/1526

Peanut Butter Cookies

Fig 4.13: Peanut butter cookies

http://www.kraftcanada.com/recipes/super-easy-peanut-butter-cookies-85456

How to do it?

- Heat oven to 325°F.
- Mix all ingredients with large spoon until well blended.
- Roll into 24 balls; place, 4 inches apart, on baking sheets. Flatten with fork.
- Bake 20 min. or until lightly browned. (Do not overbake.) Cool 5 min. on baking sheets; transfer to wire racks. Cool completely.

Bird's Nest Cookies

You'll need

- 1/2 cup unsalted butter
- 1/2 cup milk
- 2 cups granulated sugar
- 1/4 cup unsweetened cocoa
- 1/2 cup creamy peanut butter
- 1 teaspoon vanilla extract
- 2 1/2 cups quick-oats or old-fashioned oats
- 1 cup chopped pretzels
- 1/4 teaspoon salt
- 2 cups chocolate Easter egg candies

Tip:

You can make these gluten-free by using gluten-free oats and pretzels!

How to do it?

In a medium saucepan, melt butter over medium-high heat. Add milk, sugar, and cocoa and stir to combine while bringing to a boil. Boil for 1-2 minutes, stirring occasionally. Remove pan from heat. Add in peanut butter and vanilla, and stir until smooth. Stir in oats, chopped pretzels, and salt.

Drop mixture by spoonfuls onto waxed paper and form into bird nest shapes. Press down the center with your thumb so there will be a place for the candies. Let the nests cool completely. Place egg candies in the center of the nests. Serve.

Note-you can store the nests on in an air-tight container on the counter for up to 4 days. Add the egg candies when you are ready to serve.

Fig 4.14: Bird's nest cookies
https://www.twopeasandtheirpod.com/no-bake-chocolate-peanut-butter-nest-cookies/

CHECK YOUR PROGRESS

- Discuss how chocolate chip cookies can be made.
- Describe the methods of making biscuit press cookies.

- Discuss how peanut butter cookies can be made.
- Describe the methods of making bird's nest cookies.
- Elaborate the difference between cookies and biscuits

4.05 CANDY

https://www.wikihow.com/Make-Sugar-Candy

Making Lollipops

Fig 4.15: Lollipops
https://www.wikihow.com/Make-Sugar-Candy

You need:

- 1 cup sugar
- 1/2 cup light corn syrup
- 1/4 cup water
- 1 teaspoon of flavored extract, such as vanilla, rose, cinnamon, or orange
- 5 drops of food coloring

How to make?

1. Prepare your lollipop molds. Spray them with nonstick cooking spray so you'll be able to remove the finished lollipops without them cracking. Put the lollipop sticks in the molds.

- This recipe works with any type of hard candy molds. You can use drop molds, start or heart-shaped molds, or any other mold you like.

- Be sure to use candy molds, and not other types of food molds, since candy molds are designed to prevent the candy from sticking.

2. Add the ingredients in a saucepan. Place the sugar, corn syrup, and water in a saucepan. Put the saucepan on the stove over medium high heat.

3. Stir the mixture until the sugar dissolves. Scrape down the sides of the pan with a pastry brush to keep it from sticking.

4. Bring the mixture to a full boil. Stop stirring and check the temperature with a candy thermometer. Let the mixture keep boiling until it reaches 295 °F (146 °C), then immediately remove it from heat.

- It's important to remove the sugar mixture from heat at this exact temperature. Use a candy thermometer, and not a meat thermometer, to be sure your measurements are exact.

5. Stir in the extract and food coloring.

6. Spoon the candy mixture into the lollipop molds.

7. Let the lollipops harden before popping them out.

Making Rock Candy

Fig 4.16: Rock Candy

https://www.wikihow.com/Make-Sugar-Candy

You'll need:

- 2 cups water
- 4 cups sugar

- 1 teaspoon of flavored extract, such as peppermint or lemon
- 5 drops of food coloring
- 1 glass jar
- Wooden skewers

How to do it?

1. Mix the sugar and water in a large jar.

2. Stir the mixture well.

3. Add the food coloring and flavor. Rock candy takes on a beautiful hue that is accentuated by it's natural rock shape. Pick a color and flavor that complement each other. You can try one of these classic combinations or come up with your own:

- Purple rock candy with lavender flavoring.
- Orange rock candy with tangerine flavoring.
- Pink rock candy with rose flavoring.
- Red rock candy with cinnamon flavoring.

4. Suspend the wooden skewers in the solution. Place them evenly around the jar and lean them against the lip of the jar. Secure them in place with small pieces of tape, so they don't slide against each other while the rock candy forms.

- You can use wooden chopsticks in place of skewers.
- A string suspended from a pencil is also a good base for rock candy.
- Cover the jar with plastic wrap. This prevents dust and bugs from getting into the jar while the rock crystals form.

5. Wait for the sugar to form into rocks. It takes a week or two for the sugar to crystallize into the shape of pretty rocks attached to the skewers.

6. Dry the rock candy. When you're happy with the size of the rocks, remove the skewers from the jar and lay them out to dry.

Making Butterscotch Candy

Fig 4.17: Butterscotch candy

2. Combine the sugar, water and corn syrup in a pan. Place it on the stove over medium high heat, and stir until the sugar dissolves.

3. Bring the mixture to a boil. Stop stirring and let it reach 270 degrees, making sure to check with your candy thermometer for the exact temperature. Remove it from heat.

4. Add the butter, honey, salt and rum extract.

5. Stir the mixture until it reaches 300 degrees.

6. Remove the mixture from heat.

7. Pour it into the buttered pan.

8. Cool the candy for 5 minutes.

9. Score the candy with a knife. Use the knife to make diagonal score marks across the candy or make it as big as you want, so it'll be easier to break apart.

10. Cool the candy completely.

11. Break the candy along the score marks.

Vegan Marshmallows

Fig 4.18: Vegan Marshmallow

You need:

- 2 tablespoons (20 grams) sweet rice flour, plus extra for dusting
- 1½ cups (350 grams) water, divided
- 2 tablespoons (10 grams) agar agar flakes
- 1½ cups (340 grams) granulated sugar
- 2 tablespoons (3 grams) unflavored soy isolate powder
- ¼ teaspoon xanthan gum powder
- ¼ teaspoon guar gum powder
- ⅛ teaspoon cream of tartar
- Pinch of salt
- 1½ teaspoons vanilla extract

Makes 64 marshmallows

How to do it?

1. **Dissolve the agar agar flakes in ½ cup (120 milliliters) of water.** Pour ½ cup (120 milliliters) of water into a small saucepan. Add in 2 tablespoons (10 grams) of agar agar flakes. Set the saucepan aside. The flakes will absorb the water and gel up while you prepare the rest of the recipe.

2. **Bring the sugar, rice flour, and water to a boil.** Pour the granulated sugar into a saucepan. Stir in 2 tablespoons (20 grams) of sweet rice flour. Whisk in ½ cup (120 milliliters) of water. Bring the solution to a boil over medium heat.

3. **Cook the sugar water for 5 minutes.** As soon as the mixture starts to boil, reduce the heat to a gentle boil (low to medium-low). Allow the mixture to cook for 5 minutes. Stir it occasionally with a whisk so that lumps don't form. This will eventually be your syrup/

- Prepare the marshmallow base while the sugar water is cooking.

4. **Combine the rest of the water and the next five ingredients in a mixer.** Pour the soy isolate powder into an electric mixer fitted with a whisk. Add in the xanthan gum, guar gum, cream of tartar, and salt. Lastly, stir in the remaining ½ cup (120 milliliters) of water using a low-speed setting. This will be your marshmallow base.

- You can also use a food processor fitted with a whisk instead.

5. **Beat the marshmallow base until it forms stiff peaks, about 5 minutes.** Once everything is combined, turn the speed up to high, and continue mixing until the marshmallow base triples in volume and forms stiff peaks. Scrape the bottom and sides of the bowl often. This will take about 5 minutes.

- If you are using a food processor, you will need to pause it from time to time, and scrape down the sides of the bowl with a rubber spatula.

6. **Bring the agar agar water to a boil over medium-low heat.** Do this when the sugar water is almost done cooking. Stir the agar agar often to help the flakes dissolve.
7. **Gradually beat the sugar water into marshmallow base.** Turn your mixer on to a high-speed setting. While the mixer is running, pour the hot sugar water into the mixer, focusing on the sides of the bowl. Keep beating until you get thick ribbons. This will take about 4 to 5 minutes.

8. **Beat in the vanilla extract.** Pour the vanilla extract into the marshmallow base. If you don't like vanilla, you can leave it out entirely, or use a different type of extract, such as peppermint. Choose one that you think will taste good in marshmallows.

9. **Gradually beat in the agar agar water.** Do this while the mixer is still running at high speed. Keep beating the marshmallow base for another 1 to 2 minutes. Stop when the marshmallow base is thicker than before but still warm.

10. **Prepare your baking pan.** Grease the inside of an 8 by 8-inch (20.32 by 20.32-centimeter) square baking pan. Dust the bottom and sides of the pan generously with sweet rice flour. You can also use cornstarch and/or powdered sugar instead of the sweet rice flour.[5]

11. **Spread the mixture across the bottom of the baking pan.** Use a rubber spatula to help spread the marshmallow base across the bottom of the pan, from corner-to-corner. If the marshmallow mixture is sticking to the spatula, lightly coat the spatula with cooking oil. Lightly dust the top of the marshmallows with more rice flour.

12. **Let the marshmallow base set for 1 hour before cutting it.** Once the base has set, it will be firm and somewhat springy. Turn the marshmallow base onto a cutting board. Use a sharp knife or pizza cutter to cut the marshmallow base into 1-inch (2.54-centimeter) squares.

13. **Dust the marshmallows with more rice flour before serving them.** Fill a rimmed baking sheet with more sweet rice flour. Roll the marshmallow cubes in the flour until they are coated; this will keep them from getting sticky. Dust off the excess flour, then store them in a sealed container in the fridge. They will last up to 1 week.

- You can use cornstarch and/or powdered sugar for this step.

Crème de Menthe

You need:

- Gelatin 30 g
- Sugar 450 g
- Water 300 ml
- Oil of peppermint for flavor
- Green coloring quantity sufficient
- Sieved icing sugar 30 g

How you do it

Dissolve gelatin in half the water. Then put sugar into a pan which has a thick bottom with the remaining water and dissolve it gently over low heat. Take care that under no circumstance sould the syrup be boiled till all sugrar dissolved. You can stir it with metal spoon. Stop stirring once the sugar has got dissolved. Do not stir the syrup once it has started boiling.

When the syrup is boiling add the melted gelatin and you have to keep mixture boiling for 20 minutes. Take the pan off heat and allow mixture to cool slightly. Now you have to add green coloring and peppermint flavoring. Then you pour the mixture into a greesed tin and leave it to cool and set. When it has become cool take it out of tin. Toss in sieved icing sugar and cut it into squares. You can now put them into dark colored cases and store in tins.

Organic Chocolate Panna Cotta with Creme De Menthe Jelly

You require:

- 150 g organic dark cooking chocolate
- 1/2 cup thickened cream
- 1/2 cup milk
- 1/4 cup caster sugar
- 2 tspn gelatine powder
- 1/2 tspn vanilla bean paste
- 2 Tbls creme de menthe (for the bottom layer)

- 2 Tbls caster sugar (for the bottom layer)
- 300 ml water (for the bottom layer)
- 2 tspn gelatine powder (for the bottom layer)
- 1/4 cup hot water

Fig 4.19: Organic Chocolate Panna Cotta with Creme De Menthe Jelly

http://besthomechef.com.au/recipe/organic-chocolate-panna-cotta-with-creme-de-menthe-jelly/

How do we make it?

1. To make the bottom layer, combine water, sugar and crème de menthe in jug. Sprinkle gelatine over the boiling water in a small heatproof bowl or cup. Stir until dissolve. Cool slightly and stir into the crème de menthe mixture. Strain the mixture and divide among glasses and place in the refrigerator for 1 hour or until set.

2. Place cream in a medium saucepan and cook on low heat until just warm (do not boil). Add chocolate and stir until the chocolate melts. Stir in the milk, sugar and vanilla bean paste. Cook, stirring for 5 minutes until the mixture is smooth and the sugar is dissolved. Sprinkle gelatine powder and stir until combined. Strain the chocolate mixture. Set aside to cool to room temperature. Divide mixture among the prepared glasses. Place in the refrigerator for 2 hours or until set. Garnish with chocolate shapes.

Note: To make the chocolate shapes, melt 80g of white chocolate in the microwave on high. Sprinkle 2 tsps. of green powder food coloring. Mix until combined. Cool. Place chocolate in a piping bag. Line a tray with baking paper and pipe shapes onto the baking paper. Place in the refrigerator or freezer to set.

Chocolate Fudge

Fig 4.20: Chocolate fudge

http://www.kitchme.com/recipes/old-fashioned-chocolate-fudge

What do you need?

- 2 cup white sugar
- 1⁄2 cup cocoa
- 1 cup milk
- 4 tbsp butter, or margarine
- 1 tsp vanilla extract

(Serves 60)

How you do it?

TIME : Prep 10 min Cook 30 min Ready 40 min

1. Grease an 8 x 8 inch square baking pan. Set aside.
2. Combine sugar, cocoa, and milk in a medium saucepan. Stir to blend, then bring to a boil, stirring constantly. Reduce heat and simmer. Do not stir again.
3. Place a candy thermometer in the pan and cook until the temperature reaches 238 degrees F (114 degrees C). If you are not using a thermometer, then cook until a drop of this mixture in a cup of cold water forms a soft ball. Feel the ball with your fingers to make sure it is the right consistency. It should flatten when pressed between your fingers.
4. Remove from heat. Add butter or margarine and vanilla extract. Beat with a wooden spoon until the fudge loses its sheen. Do not under beat.
5. Pour into prepared pan and let cool. Cut into about 60 squares.

Making Toffee

https://www.wikihow.com/Make-Toffee

You need

- 1/4 cup of water
- 2 cups of granulated white sugar
- 1 1/2 cups unsalted butter (3 sticks), plus 1 tablespoon to grease the pan.
- 2 tablespoons light corn syrup.
- 2 teaspoons of vanilla extract/essence
- 1/4 teaspoon salt

Additions

- 2 cups chocolate chips
- 2 teaspoons sea salt
- 2 cups roasted walnuts, almonds, pecans, peanuts, or hazelnuts
- 2 cups dark brown sugar (substituted in for white granulated sugar)
- 2 ounces ground coffee and 8 ounces white chocolate, melted together.
- 1 box saltine crackers.

How to do it?

Fig 4.21: Grease an 11x17-inch baking pan with 1 tb of butter
https://www.wikihow.com/Make-Toffee

1. **Grease an 11x17-inch baking pan with 1 tb of butter.** Use the butter to lightly coat the bottom and sides of the pan. This will keep the toffee from sticking to the pan when you need to remove it. Set the pan aside on a wire cooling rack for later -- you'll be pouring the hot toffee into this to cool.

- You can also line the bottom with parchment paper or use a Silpat mat if you don't want to grease the pan.

Fig 4.22: Divide the remaining 1 1/2 cups of butter into small pieces.
https://www.wikihow.com/Make-Toffee

2. **Divide the remaining 1 1/2 cups of butter into small pieces.** Simply cut the butter up into squares. This increases the surface area of the butter and helps it melt evenly.

3. **Heat the butter on medium-high in a large, heavy-bottom saucepan.** Heavy bottom pans will prevent the sugar from burning later on, but you can use a normal pot if you don't have one.[1] Stir the butter regularly as it melts. Once you are sure that all of it is melted, move on to the next step -- you do not want it to brown.

4. **Add the sugar, syrup, water, salt and corn syrup and lower the heat to medium-low.** Once the butter is melted, add 2 cups granulated white sugar, 2 tablespoons light corn syrup, 1/4 teaspoon salt, and 1/4 cup water and stir it in until the sugar has completely dissolved. When possible, use a wooden spoon instead of a metal one to prevent sugar crystals from forming.

- If you do not have corn syrup, add an extra 4 tablespoons of butter, divided into small pieces.

5. Stop stirring when the mixture boils. Sugar can recrystallize when over-stirred, leading to grainy toffee instead of the smooth texture you are looking for. Use a pastry brush dipped in water to knock any loose sugar crystals off the sides of the pan and down into the mixture, then let the toffee sit, unstirred, until you take it off the heat.[4]

- You can also cover the pot briefly -- the steam will condense on the sides of the pot, dissolving the sugar and dripping back into the mixture.

Fig 4.23: Clamp a candy thermometer into the mixture and wait until it reads 300°F.
https://www.wikihow.com/Make-Toffee

6. **Clamp a candy thermometer into the mixture and wait until it reads 300°F.** This is the "hard crack" stage of candy. This means that, when it cools, the candy will break up into the hard pieces of toffee that you are looking for. Turn the heat off when the thermometer reads 300°F.

- If you do not have a candy thermometer, the toffee is done when the mixture is a rich golden-amber color, similar to the skin of an almond.[5] Do not let it get brown, however, as this means it is burning.

7. **Turn off the heat and quickly stir in 2 teaspoons of vanilla extract.** This ensures that you get the extract throughout the mixture evenly, but don't cause any more crystals to form. 3-4 stirs around should be enough.

8. Carefully pour the toffee onto your baking sheet. You'll leave it on your baking sheet to cool and harden, then you can break it up into smaller pieces afterward.

- If you want nuts in your toffee, spread them on the sheet ahead of time and pour the toffee over them.

9. **Cool the toffee in the freezer for 20-30 minutes.** You can then remove it, crack it into pieces, and serve. Toffee will last for 7-10 days in an air-tight container at room temperature and up to a month in the freezer.

Variations

a) Add 2 cups of chocolate chips to the toffee right after pouring it out into the pan. Sprinkle the chocolate evenly across the surface of the toffee and let it sit for 2-3 minutes as it heats up. Once it's lightened in color, use a plastic spatula to spread the chocolate evenly across the surface of the toffee, making a two-layered chocolate-toffee treat. Freeze as usual.

b) Pour the toffee over 1 cup of roasted nuts. Toffee has long been served with nuts, particularly almonds and pecans. Put a cup of nuts on the baking tray before you pour the toffee out. Then use a food processor to finely chop another 1/2 cup of nuts and pour them on top of the toffee when it is still hot (or the chocolate, if you chose to add it on top). Freeze as usual.

c) **Try white chocolate mocha topping.** Put 8 ounces of white chocolate chips and 2 ounces of finely ground coffee in a small saucepot. Heat up 1-2 inches of water in a larger pan, then place the chocolate pot in the water pan to warm the chocolate indirectly. This is called a double boiler, as the hot water surrounding the pot melts the chocolate, not the direct heat of the stovetop. Stir the coffee and chocolate until fully melted, then pour and spread on the partially cooled toffee.

d) **Substitute white sugar for brown sugar to make richer toffee.** Brown sugar has a darker, molasses-like quality that will make an especially distinct treat. You can treat the rest of the recipe the same as normal toffee.

e) T**op with sea salt or fleur de sel for a salty-sweet treat.** This decadent but simply candy is such a perfect combination you may not cook it any other way. The caramelized sugars go perfectly with a pinch of salt, sprinkled right over the top of the toffee right after pouring onto the baking sheet.

f) **Try out bacon toffee.** Sweet, salty, and savory, bacon toffee is hard to resist. To make it, simply fry, dry, and finely chop 1lb of bacon. Then lay the small pieces on your baking pan and pour the toffee over them.

Fig 4.24: Use your toffee in cookies and other baked recipes
https://www.wikihow.com/Make-Toffee

g) **Use your toffee in cookies and other baked recipes.** Crunch your toffee up and use them alongside chocolate chips in chocolate chip cookies. Toffee goes great on double chocolate cookies or crumbled on the top of a cake before serving.

CHECK YOUR PROGRESS

- Discuss how lollipops can be made.
- Describe the methods of making rock candy.
- Discuss how butterscotch candy can be made.
- Describe the methods of making vegan mashmallow.
- Discuss how crème de menthe can be made.
- Describe the methods of making organic chocolate panna cotta with crème de menthe jelly.
- Discuss how chocolate fudge can be made.
- Discuss how toffee can be made.

4.07 END QUESTIONS

The following questions should help you prepare for the End Examinations. These questions are for 5 marks each and should take you 11 minutes under examination conditions.

1. Explain the ways to make eggless apple pie.
2. Elaborate how ginger apple pie can be made.
3. Explain the ways to make Double Pie Crust.
4. Elaborate how Custard pie can be made.
5. Explain the ways to make Lime chiffon pie.
6. Discuss how cheese biscuit can be made.
7. Describe the methods of making cheese straw.
8. Discuss how potato sticks can be made.
9. Describe the methods of making khara biscuits.
10. Explain the difference between cookies and biscuits.
11. Elaborate the process of making chocolate chip cookies.
12. Explain how biscuit press cookies can be made.
13. Elaborate the process of making peanut butter cookies
14. Explain how bird's nest cookies can be made.
15. Discuss how lollipops can be made.
16. Describe the methods of making rock candy.
17. Discuss how butterscotch candy can be made.
18. Describe the methods of making vegan mashmallow.
19. Discuss how crème de menthe can be made.
20. Describe the methods of making organic chocolate panna cotta with crème de menthe jelly.
21. Discuss how chocolate fudge can be made.
22. Discuss how toffee can be made.

4.08 REFERENCES

1. https://www.tarladalal.com/Eggless-Apple-Pie-34168r
2. http://www.eatingwell.com/recipe/251064/maple-ginger-apple-pie/
3. http://everydaydishes.com/simple-food-recipes/homemade-double-pie-crust/
4. http://everydaydishes.com/simple-food-recipes/classic-custard-pie-recipe/
5. http://www.geniuskitchen.com/recipe/quick-cheese-biscuits-oamc-217263
6. https://www.allrecipes.com/recipe/22857/cheese-straws/
7. http://www.geniuskitchen.com/recipe/baked-potato-sticks-354598
8. https://www.curryandvanilla.com/healthy-khara-biscuitsindian-spiced-savory-cookies/
9. https://www.ihearteating.com/easiest-chocolate-chip-cookie-recipe/
10. http://www.geniuskitchen.com/recipe/cookie-press-cookies-144218
11. http://www.kraftcanada.com/recipes/super-easy-peanut-butter-cookies-85456
12. https://www.twopeasandtheirpod.com/no-bake-chocolate-peanut-butter-nest-cookies/
13. https://www.wikihow.com/Make-Sugar-Candy
14. https://www.wikihow.com/Make-Toffee
15. Thangan Philip, “Modern Cookery for Teaching and the Trade”, Sixth Edition, 2010, Delhi, Orient BlackSwan.

Yashwantrao Chavan Maharashtra Open University

Cover Designed by Dr Rajendra Vadnere, Director, School of Continuing Education, YCMOU, Nashik. (Oct. 2017)

V102: B.Sc. (Hospitality Studies and Catering Services)

HTS 513: BAKERY AND CONFECTIONERY