3. GASTRONOMY, BASIC SCIENTIFIC PRINCIPLES, FLAVOUR CONSTRUCTION AND GLOBAL CUISINES



Gastronomy is the study of the **relationships between cultures and how food** is produced, prepared, selected, served, and appreciated. The study of food is a discipline or art that examines people's interactions with one another from the production of ingredients to the consumption of a meal.

Gastronomy offers **a new way of understanding culture through food**. It deals with both cooking techniques, nutritional information, and food sciences, including the professional use of flavours and aromas in the preparation of a culinary dish. Food and cooking are not the only aspects of gastronomy. A major aspect of this discipline is the appreciation of food and cooking from a cultural perspective, such as the choice of **ingredients, traditions around food, food pairings, and influences from religion**.

Not every cook or chef is a gourmet. Those who are true gastronomes **experiment, discover, research, analyse, understand, and document** the food in various cultures.

Some examples of gastronomy or the study of food include

- **National cuisine**. The concept of heritage has a strong relation to national identity and includes elements of tradition and history. A good example of this is African, German, Armenian, or Arabic cuisine.
- **Gourmet gastronomy**. It involves "authors", cooking styles and methods, i.e., modern culinary trends.
- **Macrobiotic cuisine**. A macrobiotic diet is characterized by a balance between food cultivation, food use, and preparation methods (drawn from Zen Buddhism). Macrobiotic diets emphasize reducing animal products, consuming locally grown foods in season, and consuming meals in moderation.
- **Gastronomy based on religion**. Food shared by different people with a similar religious culture, such as Jewish, Islamic food, etc.

Recap and overview of menu planning factors and customer considerations

NB Refer to* ***Professional Culinary Arts Programme Course Notes*** *on menu planning execution, meal occasions, service styles, and settings.*

Factors influencing eating and drinking experiences:

There are several important steps involved in preparing, planning, and serving meals. During the meal the consumer meets waiters, other consumers, and receives dishes and drinks.

Various rules, laws, and economic and management resources (Management control system) are needed behind the scenes to allow the meal to be served and to make the experience an entirety as a meal (entirety - expressing an atmosphere). These factors are the major ones for developing meal service in restaurants. In this context, the food product itself, the consumer, and the environment all need to be considered. It is important to consider these three factors since they affect each other.

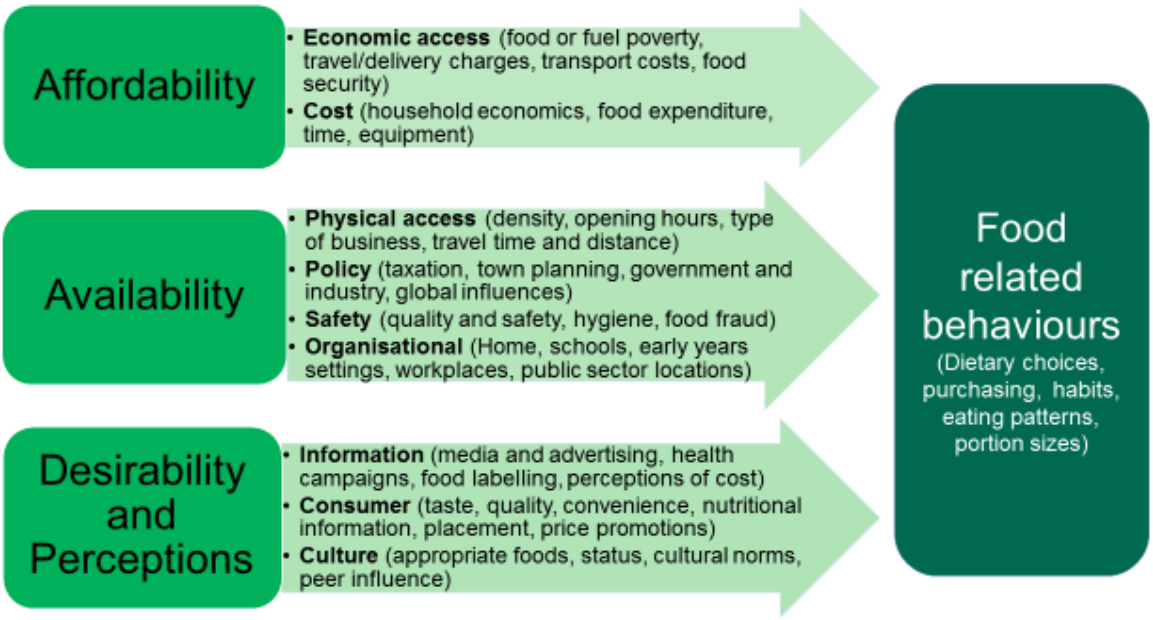
Important factors that influence the experience of the meal:

- **Dining scene and restaurant ambiance/atmosphere,**
    - Atmosphere refers to the mood of a place or a setting. Lighting, background noises, guest-staff interactions, performances, and music are examples of such factors.
    - Our surroundings affect how we perceive the meal, such as the table and other equipment in the room where we dine.
    - The setting of the property or restaurant creates the first experience for the customer and its visual impact will create an expectation of the type of food, service and wine that may be served. For example, a modern style restaurant, set right on the waterfront would create expectations of a trendy seafood menu with professional service. In contrast a wood panelled vintage home with antique furniture would probably provide classical food with silver service.
- **Personal service encounter, occasions, and staff quality,**
    - The type of service provided also sets the tone. Friendly service such as in a typical Italian restaurant run by the whole family will appeal to the local diner or families. Polished service provided in a fine dining restaurant displays a high level of skill but may be intimidating. Professional service should always be the aim with basic service skills a given.

- All provisions must interlink as some shortfalls may be made up in other areas e.g., an over cooked steak is dealt with effectively by the wait staff and the client is satisfied.
- For special occasions, guests tend to do a lot more research and are willing to spend more money. There are unique behaviours associated with certain dining occasions. You can use them to understand the motivations and goals of diners. These occasions determine what they are looking for, why they are looking for it and how they are looking for it. Consumers' behaviours and motivations differ based on whether they are celebrating an occasion, meeting up with friends (casual) or meeting for a business event.

- **Menu items, types of visitors and individual considerations,**
  - The ability to know your clients and their expectations, desires, and motivations is a crucial aspect.
  - When going out the customer choice will be influenced by circumstance, e.g., time and occasion.
- **Restaurant decision process and customer expectations,**
  - Every aspect requires various types of knowledge, including science, practical-productive knowledge, aesthetic knowledge, and ethical knowledge.
  - According to our memories, knowledge, experiences, and contexts, the cognitive picture we have of the meal creates certain expectations.
- **Experiences, circumstances, and perception,**
  - An individual's perception of a meal is influenced by previous experiences. Each sense contributes to the consumption of a meal - sight, hearing, smell, taste, touch. Colour and appearance provide us with information about the meal, as does our sense of taste, smell, and texture.
  - Circumstances, for example, customers on holiday may indicate that more time and money is spent on entertainment, and they lean more towards comfortable/casual experiences.
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- **Value, worth and reputation**
    - This is closely linked to perceptions as some consider large serving sizes as value, not necessarily the quality of the meal, and service.
    - The value is often perceived based on the whole experience.
    - Often customer choices are based on the reputation of the enterprise. For example, recognition such as awards, word-of-mouth, media coverage, etc.
- **Consistency and standardisation**
    - Customers expect constant provisions of food and service. The venue should be in good order and presents professionally.
    - Service and food provisions are at the expected level and price point. On repeat visits the product is at the same level.



Expectations associated with dining experiences

The range of establishments in the industry is enormous. This is because any business tries to differentiate itself form the competition and aims to attract different market segments. The following characteristics highlight their generic key focus, but variations occur.

Fine dining – establishments focus on high end menu offerings and excellent service

- Often aim to achieve recognition such as Michelin stars or similar food guides
- Higher price point due to the quality of setting, crockery, and food

- Aims to offer an outstanding experience

Restaurants – simple to elaborate menus with table service

- Variations are common with focus on target groups e.g., families versus businesspeople
- Price points vary depending on target market
- Aims to offer satisfactory experience

Brasserie – an informal restaurant often based on regional French food

- Appeals to the local clientele for regular visits
- Price points vary depending on target market
- Aims to offer satisfactory experience with good wine list and simple specialised food

Bistro – small restaurant with inexpensive food in a modest setting

- Appeals to the local clientele for regular visits
- Lower price point due to the use of simpler ingredients and dishes
- Aims to offer home cooked meals and service experience

Café – simple menus with table or counter service

- Provides simple meal, pastries, and cakes throughout the day with a key focus on non-alcoholic beverages
- Price points are generally lower
- Aims to offer fast and satisfactory experience

Chains and fast food – often based on USA franchises

- Appeals to clientele looking for fast and predictable food and beverages
- Chains can also reflect specific food offerings e.g., pizza, steaks, Asian food
- Price points are lower with counter service
- Aims to offer satisfactory experience with consistent standards

Themes – establishments based on themes e.g., Theatre restaurant

- Appeals to clientele for special experience
- Price point is often inclusive e.g., dinner and show
- Aims to offer entertainment and a good night out

Take away – establishments may focus only on take away meals or as an extra offer

- Provides a selection of dishes in take away containers
- Price points are generally lower and reasonable
- Aims to offer fast service, can be an add-on e.g., Restaurant may have taken away counter

Delicatessen – specialises in fine foods, smallgoods, terrines, and cheeses

- Appeals to clientele looking for high quality food items
- Foods are displayed in counter and shelves. Some provide an option of counter meals
- Price points are higher due to quality of food items
- Aims to offer satisfactory experience with consistent standards

Coffee shops – simple menus with table or counter service

- Provides simple meal, pastries, and cakes throughout the day with a key focus on non-alcoholic beverages
- Price points are lower
- Aims to offer fast and satisfactory experience can be situated within hotels

Food bars – establishments focus on take away and quick meals

- Provides a selection of dishes
- Price points are generally lower and reasonable
- Aims to offer fast service, can be counter meals

Pop-ups – uses an existing property that is not used e.g., at night

- Works like an underground establishment and is promoted by word-of-mouth or social media
- Foods are limited to the menu on offer
- Allows new experiments and establishing of a name
- Aims to offer satisfactory experience with surprises and adventure

Outdoor – can be simple offerings depending on availability of power

- Provides food and service in an interesting outdoor setting. Marquees or tents may be used against the elements
- Price points vary depending on location and service offered
- Aims to offer impressive and satisfactory experience in nature

Lodges – establishment that is more rustic often situated in idyllic location

- Provides simple dishes and beverages
- Price points vary depending on location
- Aims to offer authentic service, based on surrounds

Customer expectations

Customer expectations of a 'dining experience' vary according to the type of restaurant. All customers will expect:

- clean dining areas, cutlery, and crockery
- adequate seating
- appropriate heating, lighting
- safe, hygienic environment
- quality products

Customers make a personal choice on where to eat depending on the occasion, this will determine expectations which may include:

- style of menu
- choice of dishes
- accurate information
- level of service
- speed of service
- atmosphere
- value for money in relation to the dining experience

Platforms for gathering guest satisfaction levels

Guest satisfaction levels can be gathered using several different methods, including:

- verbal feedback
- questionnaires
- letters – written comments (positive/negative)
- emails
- telephone calls
- reviews on social media sites
- Influencers' reviews
- mystery customers.

*NB: Review **Professional Culinary Arts Programme Course Notes** (meal occasions) as it forms part of experiences and expectations.*

Information on Wines, malts, and spirit bases

Alcoholic beverages have long used three common bases: malt, spirit, and wine.

Malt Base

In the process of "malting," partially germinated cereal grains are dried. This produces the base malt. When the grains are soaked in water, they begin germinating, then they are stopped from germinating further by being dried with hot air. During this process, malt's complex sugars are broken down, allowing it to ferment. As a result of yeast metabolizing these sugars, alcohol is a by-product of the brewing process.

The two most common malt-based beverages are beer and flavoured malt beverages. A flavoured malt beverage is made by stripping the malt base of all its characteristics.

Based on the raw material cost and taxation of the finished product, malt is the least expensive base for producing alcoholic drinks.

Spirit Base

Alcoholic spirits are distilled from grains, fruits, or vegetables that have gone through an alcoholic fermentation. Through distillation, the liquid is purified, and diluting components are removed to increase the concentration of alcohol (measured as percent Alcohol by Volume). Vodka, Gin, Tequila, Rum, and Whiskey are the most common types of spirits.

The most used spirit base is grain neutral spirits. By distilling repeatedly, it can concentrate and purify pure grain alcohol. Typically, grain neutral spirits contain 95% "Alcohol by Volume" produced from grains such as corn, wheat, rye, or barley. Grain Neutral Spirits is called “neutral” because it is tasteless and odourless.

A spirit-based ready-to-drink beverage usually tastes better, but costs more than those without.

Liqueurs

Liqueurs (also known as Cordials) are sweet, flavour-infused spirits that are categorized according to the flavouring agent (i.e., fruits, nuts, herbal and spice blends, creams, and such). The word liqueur comes from the Latin liquifacere ("to dissolve") and refers to the dissolving of flavourings in the spirits. Artificial flavourings are strictly regulated in most countries, and where allowed, must be prominently labelled as such.

Liqueurs are divided into ‘generic’ and ‘proprietary’.

- **Generic liqueurs**: A generic liqueur is made to a style and can be made by several different manufacturers (such as Bols and VOK).
- **Proprietary liqueurs**: Proprietary liqueurs are made by one specific company and cannot be made by any other company.

Schnapps: is a general term used for an assortment of white and flavoured spirits that have originated in northern countries or regions such as Germany or Scandinavia. Schnapps can be made from grain, potatoes, or molasses and be flavoured with virtually anything (Watermelon and Root Beer Schnapps from the United States being proof of that). The dividing line between Schnapps and Flavoured Vodka is vague and is more cultural than stylistic, although European Schnapps tend to be drier than their American counterparts and liqueurs.

Bitters: are the modern-day descendants of medieval medical potions and are marketed as having at least some vaguely therapeutic value as stomach settlers or hangover cures. They tend to be flavoured with herbs, roots, and botanicals, contain lower quantities of fruit and sugar than liqueurs, and have astringent notes in the palate.

Pairing foods with spirits and malts

- Avoid foods that are strong in garlic or overly spicy as these will kill the flavour of any spirit.
- If you are serving spicy food, tequila is the best match.
- Often spirits with strong flavours match well with stronger foods and lighter spirits with foods with a lighter flavour profile, but you want the pairing to complement each other rather than overpowering each other.
- Fatty foods generally work well with a range of whiskies.
- Cask-strength spirits will pair better with a few drops of water added.
- Many fish dishes work well with a wide range of spirits, but fish dishes such as sushi does can generally not be paired with single malts.
- Fresh and dried fruits work well with whisky, but it is better to avoid citrus unless it is used to flavour a cake or marmalade.
- Most gins pair well neat, as a G&T when using premium quality dry tonic or as Martini.
- Sherries are great paired with classic tapas dishes or simpler nibbles such as olives and nuts.

- Fruitier, sweeter Speyside single malts pair extremely well with a wide variety of foods. Try camembert, mature cheddar, mince pies, gingerbread, rosemary focaccia, roasted nuts, dark chocolate, and ginger biscuits.
- Spicy and rich scotch also works well with various meat dishes with strong flavours. Try venison, lamb, or a good old steak. Dark chocolate and coffee flavours both make a great pairing with strong, rich single malts.
- Heavily peated single malt is best matched with gouda, strong blue cheeses, chorizo, (especially if the whisky is aged in sherry cask), hot-smoked salmon or many other fish dishes or meat that has a subtle smokiness to it. Dried fruit with sweeter nuts is an easy pairing.
- Lightly peated or more savoury scotch can be used to pair with oysters. Simply add a few drops on top of the oyster and enjoy. It can also pair well with sushi or Cullen Skink (creamy fish soup). Persimmon brings out the floral notes in lightly peated or savoury whisky.
- Light fragrant single malts or zesty malts go nicely with soft creamy cheeses, brie, olives (try olive focaccia), fish dishes and chocolate orange.
- Blended whisky (not just scotch) works well with a range of sushi, quiche, chicken liver pâté, mild dark chocolates, and cakes with vanilla.
- Grain whiskies are sugary and sweet, full of caramel, vanilla, and baked-fruit flavours. This makes them ideal for most dessert pairings.
- Rye whiskey goes well with milk chocolate, either plain or with added ginger or chili. Food with a subtle spiciness pair well with rye but avoid anything too spicy or your palate will be ruined for the night. Other foods to pair with rye whiskey are salted peanuts, spicy shrimp cocktail and onion rings.
- Bourbon is complemented by sliced ham or pigs in blankets with mustard. Thick-cut or triple-cooked chips with a nice crunchy texture pair nicely with the smoothness of bourbon. Or for dessert try a slice of apple pie. Bourbon also pairs well with pretty much any type of chocolate. (Food and drink pairing ideas, 2020)

Wine Base

Grapes or other fruits are fermented to make wine. The term "Other Than Standard (OTS) Wine" refers to wine that has gone through filtration and proprietary treatment to have a neutral taste profile.

Types of wine:

White wine

It is possible to make white wine from both red and black grapes. When you peel a grape, the flesh and juice are the same colour. It means that any colour grape can be used to make white wine, provided the darker grape skin has been removed.

White wine usually has a distinct taste profile that is marked by acidity and fresh, clean flavours, often reminiscent of pale-fleshed fruits such as apples, pears, and citrus. White wines can also be spicy, sweet, and rich tasting; a process called malolactic fermentation can be used to convert the tart malic acid in white wine to softer lactic acid, giving the wine a buttery, creamy flavour.

Red wine

During the fermentation process, red wine uses not only the juice of the grape but also the skins and pip of the grape. In addition, it is usually fermented at a higher temperature, resulting in a stronger colour, aroma, and flavour and higher tannin levels.

In wine, tannins are a chemical compound present in the skin, seeds and stems that is associated with the "dry" aftertaste of full-bodied wines like Cabernet Sauvignon. Red wine is extremely varied; you can find a light-bodied red wine, a dry, fruity red, or a rich and spicy vintage red, which is made different grape varieties.

Rosé wine

is traditionally made by letting the skins of black grapes remain in the juice for a few hours (usually 12 to 36) until the desired colour is achieved.

TABLE 2: GENERAL WINE PAIRINGS

Food	Wine
Salads	Chenin blanc, Verdelho, Chardonnay, Riesling
Antipasto	Chardonnay, Rosé
Seafood	Semillon, Sauvignon Blanc, Riesling
Game	Cabernet Sauvignon, Shiraz, Chardonnay, Semillon
Red meat	Cabernet Merlot, Cabernet Sauvignon, Shiraz, Malbec
Poultry	Chardonnay, Chenin Blanc, Verdelho
Pasta	Chardonnay, Riesling, Shiraz
Cheese platters	Cabernet Merlot
Desserts	Dessert wines

Wine to complement food

When complementing food with wine, try to select wines that will harmonise well with the dishes and their ingredients general guidelines are:

- Whites with fish, chicken, veal, and pork
- Reds with dark meat
- Reds with cheese
- Delicate wines with delicate food
- Full-bodied wines with full-bodied food
- Sweet wines with sweet food
- Champagne can generally go with anything and with any course.

Wine & Food Pairing Quick Chart:

The four basic rules for wine and food pairing are:

- Red wines with heavier menu items
- White wines for lighter menu items
- Red wines with red meat
- White wine with white meat and seafood

The 3 secondary rules are:

- White wine before red wine
- Young wine before old wine
- Dry wine before sweet wine

TABLE 3: WINE PAIRINGS

	Cabernet Sauvignon	Chardonnay	Merlot	Pinot Noir	Riesling	Sauvignon Blanc	Zinfandel
cheese	aged cheeses Camembert Gorgonzola strong cheddar	havarti mozzarella Muenster Provolone	aged cheddar aged Gouda Parmeson Romano	Asiago Cambozola Fontina Parmeson	Cheshire Colby Edam Gouda	Feta goat cheese Gruyere Ricotta	aged cheddar Brie Munster
herbs / spices	bay leaf juniper rosemary sage	saffron sesame shallots tarragon	basil Italian parsley mint thyme	basil fennel garlic oregano	chervil ginger lemon orange zest	chives cilantro creole dill	black pepper garlic oregano
meat / poultry	beef game birds leg of lamb venison	chicken pork turkey veal	beef grilled meats hamburgers steak	duck lamb pheasant pork chops	pork prosciutto sauted chicken	chicken game hens turkey veal	BBQ ribs pepper steak quail spicy sausage
sauces	brown sauce red wine sauce tomato	bearnaise creamy light sauce pesto	balsamic vinegar bolognese meat sauces red sauce	mushroom red sauce tomato	chutney cream sauce light sauces	citrus lemon or herb light sauces tomato vinaigrette	barbeque cajun salsa spicy

seafood	cioppino seared tuna	crab lobster shrimp white fish	grilled swordfish salmon tuna	grilled tuna orange sushi salmon swordfish	lobster sauted fish sea bass trout	calamari clams mussels oysters	blackened fish bouillabaise cioppino

(Barinacraft)

Information on hot and cold beverages

A beverage or drink is defined as liquid refreshment that customers order to quench a thirst.

Types of Non-alcoholic Beverages include:

- Bottled water and flavoured derivatives e.g., soda, mineral, spring or still water.
- Soft drinks (bottles, cans, and post-mix)
- Fruit and vegetable juices – freshly squeezed and served or bottled
- Cordials and syrups
- Milkshakes
- Flavoured milks
- Smoothies
- Mocktails (non-alcoholic cocktails)
- Frappés (partially frozen fruit juice mixtures served with small pieces of ice) and
- Fruit whips
- Health drinks
- Energy drinks
- Sports drinks
- Children's speciality drinks
- Hot beverages like tea and coffee

Classification of Hot Beverages:

Hot beverages are all the drinks served mostly before or after a meal. Generally, hot beverages are enjoyed with the purpose of rounding off a meal, or to warm the body during wintertime.

You may need to serve tea, coffee, and other hot beverages at almost any time of the day, in a range of locations. The service may start in the early morning with the traditional 'wake up' tea or coffee delivered to a room, or it may be in the restaurant, the lounge or function areas.

Where the service comes from and which department is responsible, will differ according to the structure of the hotel.

In some hotels and restaurants, afternoon or morning teas can become a social event.

Tea:

Tea is a natural, additive-free beverage, served hot or cold, made by steeping (soaking in hot water to release flavours) the leaves, buds and/or twigs of the tea bush. It has a cooling, mildly fragrant, slightly bitter, and astringent flavour.

There are 4 types of tea that are widely available – **green, oolong, black and white**, as well as 2 less common types – **yellow and post-fermented.**

The difference between the teas is in the variety of plant used, the growing methods and processing methods used, resulting in differing characteristics. The largest difference comes from the length of time that the leaves are oxidised for.

Tea Varieties:

- **Green teas** are very popular in China and Japan and are becoming more popular in the West due to their health benefits
- **Black tea** is very popular around the world. Oxidation makes the tea turn black. There is wide variety amongst black teas as they are grown throughout Asia, Africa and South America.
- **Different blends can be combined to create variations such as:**
    - English Breakfast and flavoured Earl Grey
    - Assam and Darjeeling are grown in India
    - Lapsung Souchong is produced in China with a smoky flavour due to the production process
- **Oolong tea** is also known as semi-black tea, because the oxidation is stopped before the tea turns black
- **White tea** is not oxidised, like green tea.
- **Herbal teas** are made by adding hot water to dried fruits, flowers, stems, leaves and roots. Chamomile, dandelion, rosehip, and other plants are popular herbal teas.
- **Iced tea** is a tea that is served cold. It is also available in bottled form with different flavourings.

Coffee:

Good quality coffee has become more popular in recent years. Guests will even use coffee as one of the criteria for judging the quality of the establishment. Coffee shops have become increasingly popular, with the flavours and styles more adventurous and methods of preparation, more varied. A Barista is a coffee specialist, much like a Sommelier who specializes in wine.

Coffee is a globally consumed beverage with stimulating qualities. It is prepared from roasted seeds or more commonly called coffee beans, which come from the coffee plant. This product originated in Ethiopia, and from there it spread to Turkey, North Africa and eventually to Italy and the rest of Europe. Today, coffee is one of the most popular beverages worldwide. It is also one of the most popular commercial beverages available.

Coffee berries, which hold the coffee bean, are the fruit of small evergreen bushes, of which the most grown varieties are:

- Coffea Robusta, and
- Coffea Arabica

The Two Major Types of Coffee:

While there are many types or varieties of coffee available to consumers, there are only two main species of coffee plant. The first, and most traditional, is Arabica, which is far superior in flavour – the champagne of coffee, shall we say. The other variety, Robusta, is higher in caffeine and tastes far more bitter and acidic, which makes it less than preferable for most domestic use. On the upside it can be cultivated in areas where Arabica won't grow. This makes it a cheap substitute for Arabica, which sees several coffee companies add small amounts of Robusta to their product lines as 'filler'. Finest quality Robusta beans are sometimes used as ingredients in certain espresso blends, but these are somewhat of an acquired taste. When the berries are a bright red colour, they are ripe and can be harvested. They are then processed and eventually, dried. The beans are roasted to various degrees, depending on the strength and flavour desired. These beans are ultimately ground to a fine 'powder' and brewed to create coffee.

Coffee Varieties:

- Filter Coffee is suitable for breakfast and function service
- Espresso or caffe espresso is a concentrated coffee made in an espresso coffee machine. It is used in many variations.

Coffee terminology can be described as follows:

- **Flat white** – an espresso topped with steamed milk
- **Doppio** – is the base for strong drinks and a long black
- **Macchiato** – an espresso stained with a dash of hot/cold milk or foam
- **Cappuccino** – an espresso topped with ½ steamed milk and ½ dense, creamy milk foam
- **Caffé latte** – an espresso topped with steamed milk and 10mm dense foam, served in a glass
- **Americano** – a shot of espresso coffee infused with hot water also called a long black coffee
- **Frappe** - Originally a cold espresso, it has more recently been prepared putting 1-2 teaspoons of instant coffee with sugar, water, and ice. The brew is placed in a long glass with ice, and milk if you like, turning it into a big coffee milkshake.
- **Indian (Madras) Filter Coffee** - A common brew in the south of India, Indian filter coffee is made from rough ground, dark-roasted coffee Arabica or Peaberry beans. It's drip-brewed for several hours in a traditional metal coffee filter before being served. The ratio of coffee to milk is usually 3:1.
- **Irish Coffee** - A coffee spiked with Irish whiskey, with cream on top.
- **Lungo** - One for the aficionados, this is an extra-long pull that allows somewhere around twice as much water as normal to pass through the coffee grounds usually used for a single shot of espresso. In technical terms, it's about a 60-ml shot.
- **Mocha** - This popular drink is basically a Cappuccino or Latte with chocolate syrup added to the mix. Sweeter, not as intense in coffee flavour, and a good 'gateway' coffee for those who don't usually do the caffeine thing.
- **Ristretto -** The opposite of a Lungo, the name of this variety of coffee means 'restricted', which means less water is pushed through the coffee grounds than normal, even though the shot would take the same amount of time as normal for the coffee maker to pull.

- **Instant Coffee (or soluble coffee)** - These grounds have usually been freeze-dried and turned into soluble powder or coffee granules. Basically, instant coffee is for those that prefer speed and convenience over quality. Though some prefer instant coffee to the real thing, there's just no accounting for taste.

Specialty coffees:

These beverages are becoming increasingly popular and by studying the various ingredients and preparation methods, you may be able to promote and sell many drinks to your customers. Specialty coffees are made with percolated, strong, dark roast coffee served with the addition of liqueur or spirits and finished with whipped cream, milk foam or ice cream. May be enjoyed hot or cold, with the addition of sugar is the guest so wishes.

Various specialty coffees and the main ingredient used as base:

- A Don Pedro is a cold alcoholic beverage made with vanilla ice cream and Cape Velvet liqueur. It is blended to form a smooth 'milkshake' and served in a champagne flute or special cocktail glass.
- Another variation of Dom Pedro is a hot specialty coffee made with strong black coffee and Benedictine. Topped with whipped cream or double cream spooned on top.

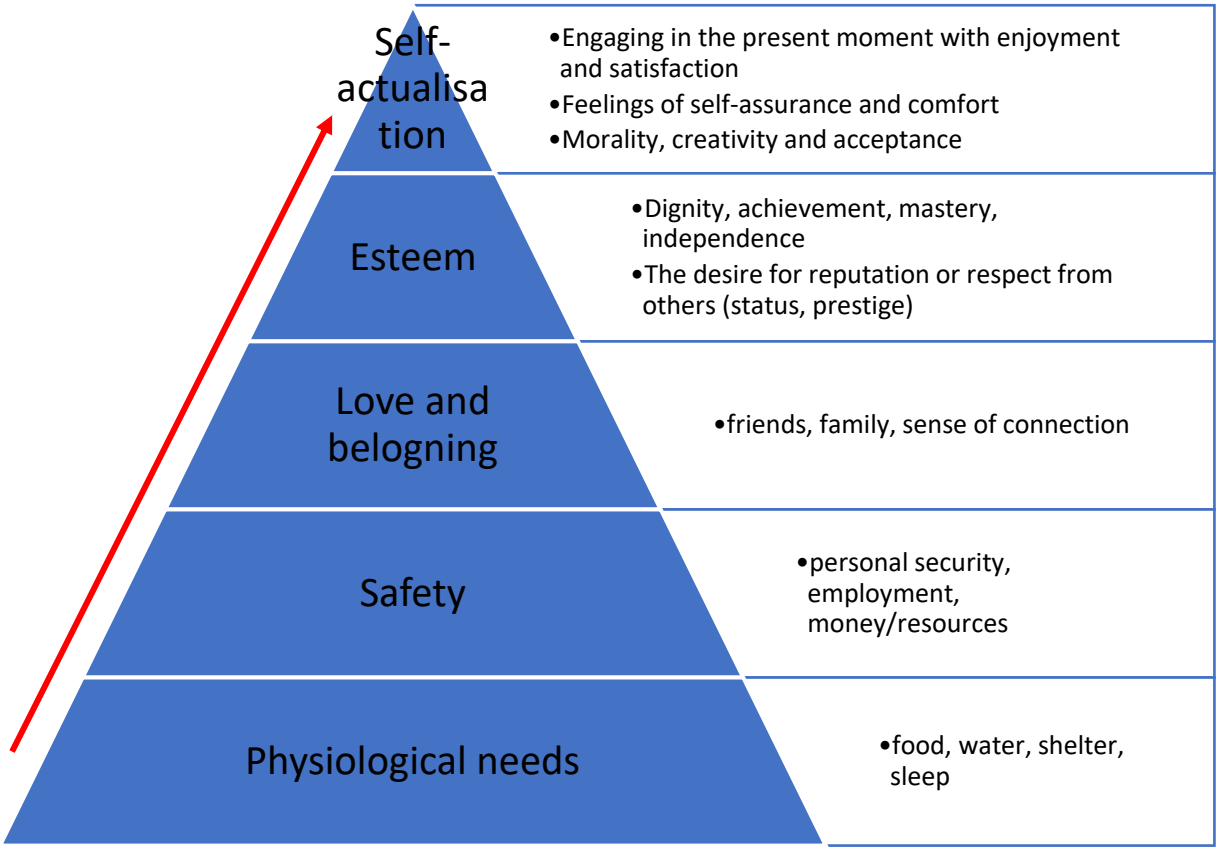
TABLE 4: SPECIALITY COFFEE

Caribbean Coffee	Light rum
Jamaican Coffee	Tia Maria & Light Rum
Calypso Coffee	Tia Maria
Irish Coffee	Irish whiskey
Highland or Gaelic Coffee	Scotch whisky
Prince Charles	Drambuie
Cuban Coffee	Dark rum
French	Brandy
Alsacienne coffee	Kirsch (cherry liqueur)
Royal Coffee	Cognac, flamed
Mexican Coffee	Tequila & Kahlua
Dom Pedro	Benedictine

The Relationship Between Customer Needs and Experiences

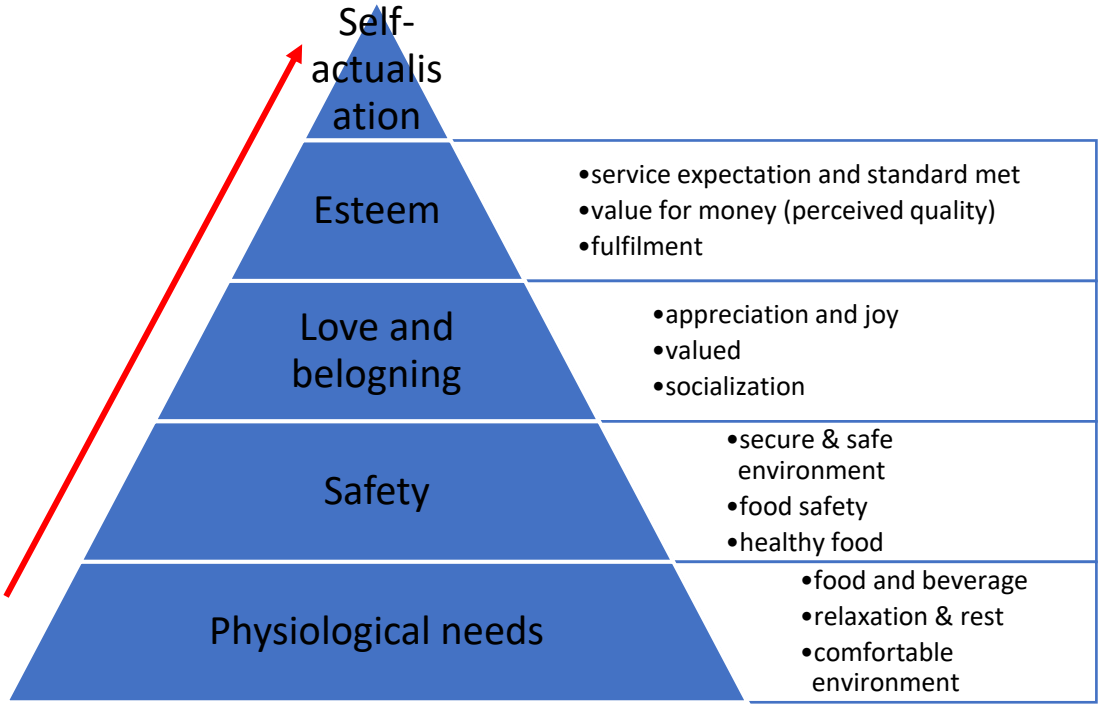
The hierarchy of human needs (Maslow's hierarchy of human needs)

Maslow identified five categories of "needs" that drive human behaviour and motivation. According to Maslow, people aren't motivated by status or prestige if they don't have food, water, and shelter. When someone has met their physiological, safety, and belonging needs, then they can focus on esteem and self-actualization. The hierarchy below outline these needs and stages:



(Maslow's Hierarchy of Needs)

Based on the various human needs identified through Maslow's theory, you can describe the relationship between hotel staff and their guests using the hierarchy of needs in the following way:



1. **Physiological needs** (Provide quality food, beverages, sleep, etc. to guests)

All of these indicate the need for a human body and its proper functioning. Take the hospitality industry. The hotel should meet the physiological needs of its guests, while additional services should meet other needs. Food and water are necessities that the hotel staff are required to provide to their guests, without which the guests will experience discomfort. For a hotel to be able to meet the most basic needs of its guests, it is vital to focus on providing an expected quality and quantity of food and water/beverages, failing which the hotel would be responsible for not meeting these needs thus failing to carry out the hospitality service that they are offering. The hotels should therefore focus on services which cater to a person's most basic needs (food, water, shelter, sleep).

2. **Safety** (Provide security, safe food, and safety measures to guests)

Hotel guests expect a high level of safety during their stay as soon as they check-in. The hotel's security, fire-safety, electrical safety, disaster-safety, and everything related to the feeling of safety on the property is included.

3. **Love and belonging** (Provide recreational and individualized service to guests)

By creating a sense of belonging and a unique atmosphere, hotel staff creates a feeling of appreciation. Talking about a guest's well-being and addressing them by name is a common way of creating a sense of belonging. The most effective way for hotels to make their frequent guests feel welcome is to maintain a database of preferences, offer special discounts, and build a personal relationship with them.

4. **Esteem** (Provide respect and treat guests with dignity)

As we move beyond the three basic needs, the need for 'esteem' emerges, which is comprised of self-esteem, confidence, respect, etc. It is not uncommon to witness situations in the hospitality and catering industry where a guest is demanding and expects unrealistic services. The hotel staff must often suppress their anger and frustration and follow the rule that "the customer is always right". As we see these instances, they demonstrate the cause-and-effect relationship among such events where a guest just wants to fulfil the basic need of "esteem". Several options exist for dealing with such situations or avoiding them. If the staff understands that the guest is coming from a place to fulfil a natural human need, it makes it easier for them to deal with without blaming the guest.

5. **Self-actualisation**

Among these are morality, creativity, and acceptance. Hotel staff cannot fulfil this human need since it is the only one that must be met be met by the individual and happens wholly when all other needs are met.

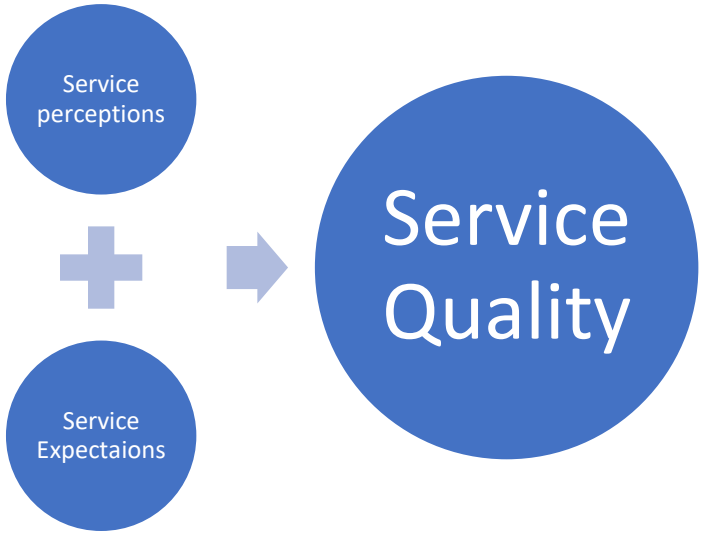
Providing a Good Customer Experience and Manage Expectations:

When customers visit a food service establishment, they have preconceived ideas about the service they want and expect. These form their expectations of service quality. It is important to distinguish between service expectations and service perceptions on the part of the customer.

During a service transaction, **service expectations** consist of a customer's expectations regarding the likely outcome. As a result, when an individual encounters a service, they will experience it differently and subconsciously determine the quality. This is a **customer's perception** of service. In other words, a customer's service perceptions can be defined as his or her "general attitudes and judgements about a service".

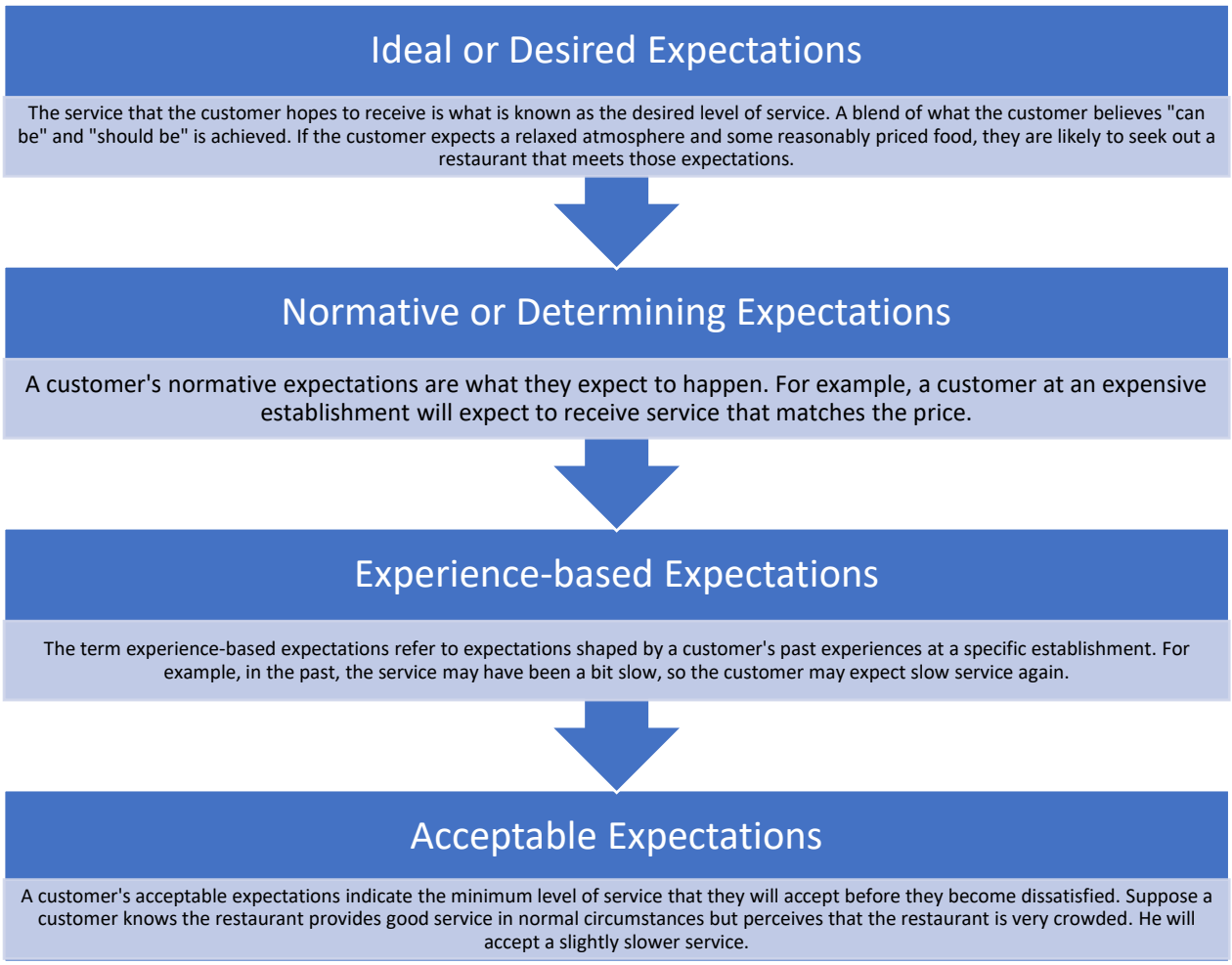
As a result, **service quality** is determined by **perceptions of services** and **expectations of services**. Delivering a high-quality service involves knowing what the customer expects. You can lose customers' business, money, and resources if expectations are not managed. **Predicted service** level is a measurement of the customer's expectations ranging from ideal service to adequate service.

FIGURE 14: SERVICE QUALITY



This is based on the service style and market your establishment appeals to. See below figure 13 types/levels of customer expectations:

FIGURE 15: LEVELS OF CUSTOMER EXPECTATIONS



Factors that influence customer expectations.



As previously mentioned, a customer's expectations can be influenced by three types of factors: internal, external, and situational. This will ultimately influence how a customer predicts the service will be.

- **Internal factors.** Past experiences, personal needs, and service philosophy.
- **External factors.** Referrals based on social contexts and word-of-mouth.
- **Situational factors.** Other factors, such as the reason for eating out, the weather and time constraints, can impact customer expectations of quality service.

Customer perceptions on service quality.

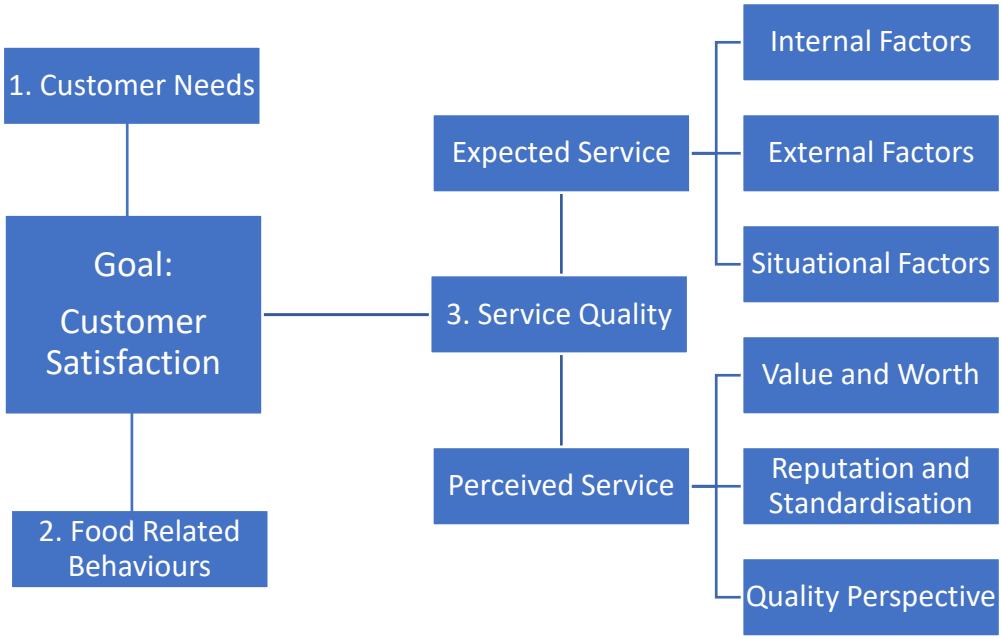
When customers visit an establishment, they feel uncertain about the service quality, as they do not have any control over the situation. In some cases, this may occur due to unpredictable service settings or low motivation levels among employees. To reduce this anxiety, it is important to motivate employees and make sound management decisions.

It is possible for some customers to experience a mixture of service failure and service delight, highlighting the fact that assessing service quality is personal and subjective.

Service quality may be viewed from three perspectives: a product-directed perspective, a user-directed perspective, and a value-directed perspective:

- From the **product-oriented perspective**, service quality is viewed as an issue of variance between the actual and ideal qualities of a product or service.
- From a **user-directed perspective**, they see quality as a product or service's ability to meet their needs.
- From a **value-oriented perspective**, individuals see quality as the difference between costs and benefits (i.e., what they consider value for money).

FIGURE 16: CUSTOMER SATISFACTION, EXPECTATIONS, AND PERCEIVED SERVICE



Benefits of positive customer satisfaction

Establishments will be aiming to achieve 100% customer satisfaction as this will:

- maintain/improve reputation
- increase business levels
- increase staff morale
- reduce staff turnover
- reduce complaints.

Action to maximize guest satisfaction

A chef de partie will play an important role in maximizing customer satisfaction through:

- proactive supervision of the team
- checking products before service to ensure they meet standards
- dealing with guest issues efficiently and effectively to avoid complaints
- timely delivery of the menu items to meet customer expectations
- flexible attitude to meet customer needs
- consistency when producing and serving menu items to avoid customer dissatisfaction
- training the team to be able to deliver menu items to the required standard.

Factors that influence food and drink

Global influences

There are several global influences on the food and drinks served in restaurants, including:

- geographical regions around the world
- commodities and ingredients
- etiquette
- cooking techniques
- menu structure
- social media
- conscious consumers.

Availability of food commodities

Commodities and ingredients may be in short supply or not readily available when planning and producing menus. The external factors that must be considered when sourcing ingredients are:

- **Climate:**

Climate is a major factor in the availability of commodities across the globe. Most foods now available all year round due to:

  - new modes of production, marketing, distribution, and processing
  - improved quality of convenience products
  - predictability of price and quality.
  - With global warming and a higher awareness of sustainability, seasonal produce influences the dishes offered on menus.
  - Seasonality refers to the times of year when a given type food is at its peak:
  - either in terms of harvest or its flavour
  - when the food is the cheapest and the freshest.

- **Cultural and religious influences**

Cultural and religious beliefs can have an impact on the availability of foods in restaurants.

- Some restaurants will not serve particular commodities.
- Different preparation and cooking methods are observed.

Examples of religions include:

- Hinduism
- Judaism
- Islam
- Sikhism
- Catholicism

- **Economic influences**

The cost of ingredients is a key factor in the availability of ingredients. This can be affected by:

- shortages due to poor harvests
- increased transportation costs
- processing costs

- import costs
- budgets available.

- **Geographical location**

Different foods are produced across the world, but availability will be determined by location Restaurants now consider the impact on the environment when selecting ingredients and so now look to use more locally sourced products to:

- reduce air miles
- offer sustainable products
- support local economies.

Lifestyles and Trends

The advances in most countries have led to a wealthier society. With the extra money available lifestyles have changed dramatically. The availability of food, a profusion of restaurants and other food outlets has raised the expectations and access to foods.

- **Prepared foods** – pre-cooked and prepared food items are readily available and can be either reheated or quickly finished. These have gained in popularity as more families depend on two wages and less time is available for cooking

- **Take-away** – the increase in working couples as well as the convenience of simply picking up a quick meal without having to cook it or wash up afterwards has seen a plethora of businesses catering for this demand featuring meals from all corners of the globe

- **Going out** – food is enjoyed in restaurants on a more regular basis with simpler meals being consumed throughout the week with the special occasions being celebrated in better establishments. The diversity of restaurants has lifted the standards and expectations of clients with a much stronger expectation and tendency to order high quality foods

- **Tourism** – the increase in domestic and international tourism has raised the expected standards. It also creates a wider understanding of different cultures and their food or requirements. Menus can now feature not only the local language but may have separate sections in the language of key tourist groups

- **Lifestyle choices** – the increase in income also means that people become more discerning about the food they eat. Longer life expectancy has led to more awareness of health and nutrition and customers have increasing demands in this area:
    - Vegetarian foods with an emphasis on the different types of ovo-lacot, lacto and vegans
    - People who do not eat red meat, or poultry or other specific items
    - People with allergies such as coeliac or nuts
    - Organic foods with accredited sourcing
    - Food mile-based meals
    - Local farmer or producer-based meals
    - Healthy options such as low fat, low cholesterol, or sugar

- **Food preferences-** Customers will have individual food preferences when dining out which may include:
    - healthy eating
    - religious
    - cultural
    - lifestyle choices – vegetarian.
    - These are different to dietary requirements but should be catered for when planning menus.

- **Trends and "fads"** – food is like fashion and the industry is constantly reinventing itself. Major influences are created by market leaders such as Bocuse and nouvelle cuisine with the dish of today's top chef featuring in a toned-down version in a local restaurant soon thereafter. Trends such as molecular cuisine, shared plates, deconstructed food, slow cooking, and paddock to plate are continuous and some will succeed whilst others disappear. Trendsetters may do well but can also become victim of the next craze

Media and Celebrities

The media has had enormous influence on the development of food and service. The amount of coverage that is given to food, wine, service and tourism is incredible. The high profile of chefs, food and producers has educated consumers to a high degree and making them more discerning.

- **Television** – the increase in channels and food programs, often centred around celebrity chefs or life shows, has been phenomenal. Television has created some of the best-known celebrity chefs such as Jamie Oliver. A cooking show can be watched at any hour throughout the day. Other programs feature tourism style information about different countries around the globe, their culture and food. Advertising bombards us with food choices

- **Radio** – live programs about food, wine and tourism are popular. Live shows from the markets, information about producers and of course advertising plays and important part of the ongoing education of consumers. Once again celebrity chefs, restaurateurs and food critics take part and add interest

- **Newspapers and magazines** – the food sections within newspapers have grown considerably with specialised food writers composing articles and reviews about restaurants. Special events and festivals are given coverage and some magazines focus solely on food and wine or travel. Food photography and interviews with restaurateurs, chefs and industry leaders are featured

- **Books** – the prevalence of cookbooks and books about wine and tourism is astounding. 1000's of new cookbooks, books about wine and tourism are published each month across the globe. Whilst there may be a saturation point people are collecting these with a passion often because of the pictures, interesting parts or simply because of the region that they cover

- **eBooks** – the latest adaptation of traditional publishing allows users to download books onto their computer or tablet and even smart phone. Some of these books come with video, animations, and interesting interactive components. The advantage of these is the transportability of the resource as it can be kept on the tablet without the

associated weight and it is easy to jump from one book to the next iBooks, kindle, koko and nook are just some examples

- **Internet and social media** – the internet have not only become an advertising channel for restaurants and hotels, it has also allowed to reach out to a global audience. Clients can peruse the menus, take **virtual tours** and book online. Blogs and chats cover all sorts of discussions about the latest trends, gossip, or events. **Social media** through Facebook and twitter provides a vibrant platform for interacting with people and provides instant feedback on their perceptions



Effects of Migration

The globe is getting smaller. Migration and global movement of the workforce is bringing people closer together and furthers their understanding of different cultures and their customs. Throughout history cultures interacted whether it was through colonialism or travel.

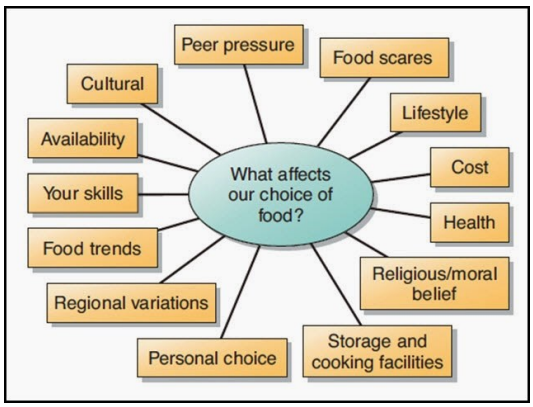
History:

- Consider the influences of colonialism such as the English in India or the Dutch in Indonesia. In both cases the food influences reversed with Indian now being the most popular English meal and the rijsttafel being a staple in Holland
- Consider the migration of labour such as Turks and Italians working in Europe and bringing their food to their Northern neighbours
- Consider migration after wars such as Vietnamese fleeing their country taking the cuisine to all areas of the globe with restaurants in most major cities
- Consider general migration where immigrants converge in the new country and form their own clubs offering their food such as the Polish, Macedonian or Greek clubs.

Influences and local developments:

- The impact that advertising and adaptation of the American culture had across the globe with some of their key brands such as McDonalds, subway, KFC now found in many countries.

- Speciality restaurants also abound with Chinese restaurants found in even the smallest towns often based on a very strong work ethic and family business approach



Food cultures influences on eating and drinking:

Different cultures and countries have developed strong customs regarding the food and service provided. This encompasses the way it is cooked, served, eaten and how it fits into the overall life of the person.

- Food origin determines the food cooked for example people that live close to the sea will consume predominantly seafood, farmers eat cattle and pigs
- The preparation and cooking depend on the local customs and availability e.g., Chinese use a cleaver for most cutting, a wok for cooking and therefore can cook efficiently using little power or heat source, colder climates cook heavier braised foods
- Etiquette for eating also differs with cutlery being used in Western countries, chopsticks in China and Japan and the hand in many Asian and Arab countries. All of these have defined rules e.g., fork on the left, knife on right pointing inwards, stand for chopsticks, use of a specific hand for eating. Other etiquettes outline whether food is chewed with the mouth open or closed and whether you hold a conversation while eating. In some cultures, men and women eat separately. Ensure you know the local rules
- Etiquette for drinking also differs with a variety of vessels used from coconut shells for Kava to crystal glasses for wine. Some cultures will not drink while they are eating. Some cultures will not consume alcohol. Some will have specific ways of addressing fellow drinkers such as saying cheers or Prost, touching glasses or lifting them.
- Culture influences food choices is mostly based on **geography, heritage, and religion.**
    - Geography: people who live in a particular area/region often has the same customs and consume the same food (i.e., Mexican, Chinese, etc.)
    - Heritage: People who share a common past often eat similar foods.
    - Religion: People who practice certain religions often have similar diets (i.e., Halal, Kosher, etc.)

Impact Of Science and Technology on Eating and Drinking.



Food science addresses food's physical, biological, and chemical makeup; the mechanisms by which food deteriorates; and the underlying processes behind its manufacturing. Science, engineering, and microbiology are utilized by food scientists and technologists to investigate, design, and develop foods with the aim of improving the safety, nutritional quality, wholesomeness, and availability of food. A food scientist's area of expertise may dictate how food is processed, preserved, packaged, and/or stored following industry specifications and regulatory guidelines.

Food technology refers to the methods used to select, preserve, process, package, distribute, and use safe foods. Analysis of chemistry, biotechnology, engineering, nutrition, quality control, and management of food safety falls within this field.

Food processing is the process of changing the properties of food substances to preserve, improve, or make them more functional. By applying labour, machinery, energy, and scientific knowledge, food processors turn raw animal, vegetable, and marine materials into edible products.

In the food and beverage industry, **chemical, biological, and mechanical processes** are used to transform bulky, perishable, and typically inedible food materials into shelf-stable, convenient, and palatable products.

With science and technology, the food industry has developed immensely, and continuously improves convenience.

Impacts of science and technological advances on food service:

- **Increased food production and food security.**
    - The use of GMOs made it possible to produce high yields and resist diseases. They are cultivated in areas where the environment is not favourable for production, to meet the demand and ensure the supply of food in all parts of the world.

- Using drone satellite imagery, precision agriculture is possible. The technology makes it easier to monitor crop growth so that problems can be dealt with effectively to prevent losses and ensure maximum food production.
- The use of artificial intelligence. AI is used to detect health issues in poultry and livestock farming. On poultry farms and butcheries, AI robots are used to ensure rapid production. Automated machinery performs difficult butchering and complex meat cutting tasks.

- **Livestock management.**
  - special breeding and pasture management means that livestock is younger, has better genetics to ensure tenderness and less fat ensuring more consistent product

- **Ripening of crops.**
  - scientific advances have improved the ripening times of foods thus allowing extra harvests each year

- **Food regimes.**
  - adaptations of food regimes mean that animals are bred quicker and can be slaughtered earlier. Farming intensity has also been increased allowing higher yields with ethical issues being raised e.g., battery hens

- **Improved food storage.**
  - In the food industry, technology has enabled the long-term storage of food.
  - Several companies have built large warehouses for storing food. Having the correct temperature and oxygen levels as well as the approved cooling or warm surrounding.
  - To store and transport food commodities safely, vehicles are equipped with storage facilities with the necessary level of chemicals, moisture, and air.
  - Fruits, vegetables, and meat are stored with oxygen absorbers to prevent rotting.

- **Irradiation.**
  - food is exposed to radiation for a brief period which kills bacteria and pests and extends shelf life considerably. Once again concerns are being raised in regard to possible side effects, but food is not radioactive!

- **Food packaging.**
    - Packaging is one of the biggest impacts of technology on food. In the food industry, it is the most fundamental and important element. Food packaging technology has revolutionized the food industry.
    - In addition to protecting food from physical contamination, the packaging ensures that it is delivered safely to consumers.
    - Food items are packaged according to their characteristics. There is a type of packaging for every food item.
    - For milk products, Tetra packaging is used due to the delivery and shelf-life considerations, whereas tins and glasses are used for beverages with a specific amount of oxygen, carbon dioxide, and nitrogen to protect, increase shelf-life, and ensure quality.

- **Assurance of food quality:**
    - Customers can now access the latest scientific information about food via the Internet.
    - As customers have access to the most up-to-date information, the manufacturer cannot mislead them about food products.
    - Customers are well informed about the ingredients and processes involved in making food.
    - The technology enables the customer to question the food manufacturer or restaurant about the ingredients and their content in the food.

- **Promotes a culture of food safety and food fortification:**
    - Technology has a major positive impact on the food industry as it enables scientists to thoroughly research and discover key information about food. Research and awareness about foods are continuously promoted.
    - As a result of technology and research, the population became aware of the importance of micronutrients in food.
    - By fortifying foods, we increase the number of micronutrients found in them, whether they are naturally found or not.
    - Iodized salt, wheat, and corn flour can be fortified to overcome nutritional deficiencies.

With food preparation, cooking and service further advances have been made. From the simple reheating of food in a microwave, to modern sous-vide cooking the chef has extra tools.

- **Ready meals.**
  - these are available for the home and industry market. They are pre-packaged and chilled or frozen and mostly warmed in the microwave or oven. Airline food is a typical industry example and quality has improved consistently
- **Cook-chill.**
  - this describes a process where food is cooked and then chilled using blast freezers to 3°C. Shelf life is tested by sampling in a laboratory and indicated on the label ~4-8 days
- **Cook-freeze.**
  - this describes a process where food is cooked and then frozen using blast freezers to -20°C. Shelf life is tested by sampling in a laboratory and indicated on the label ~6-8 weeks
- **Sous-vide.**
  - food is cooked at low temperature ~60°C within a sealed plastic bag.
  - This prevents a breakdown of the protein and achieves a moist and juicy product.

Adapting dishes

Chefs will need to be able to adapt dishes on the menu to ensure:

- guests' dietary needs are met
- guest preferences are catered for.

This may include:

- substituting ingredients
- changing the cooking method
- revising recipes.



Global Cuisines and International Culinary Styles



With multicultural influences, most menus feature dishes from around the globe. The chef de Partie should know the key principles of ethnic cuisines and be able to produce them to a professional standard. Whilst some restaurants are purely based upon a specific cuisine e.g., Italian, French, Greek, etc. many establishments offer a la carte menus that show influences from across the globe. Chefs also use inspiration from other cuisines to create 'fusion' dishes that combine classic approaches with a twist.

International cuisine refers to cuisine that is practised in many parts of the world. A cuisine is a specific style of cooking practices and traditions found in a particular region, country, or culture. Global cuisine consists of local, regional, or national cuisine that spreads around the world. This may include cooking methods or techniques, service styles and dining etiquette.

TABLE 5: EXAMPLES OF INTERNATIONAL CUISINES:

Cuisine	Key Countries
Asia	Often loosely described as Oriental cuisine it has distinct cuisines with signature dishes and regions within each country: ➢ East Asian – Chinese, Japanese, and Korean ➢ Southeast Asian – Vietnam, Thailand, Malaysia, Indonesia, Singapore ➢ Central Asian – Kazakhstan, Mongolian, Uzbek, Afghan
Indian	➢ Sri Lanka, Pakistan, Bangladesh
Africa	➢ South African, Moroccan, Tunisian, Algerian, etc.
South America	➢ South American with specific country cuisines e.g., Brazil, Argentina, Chile, Ecuador
North America	➢ Canada. Central America

Middle Eastern	➢ Turkey, Lebanon, Persia, Israel, Egypt etc.
Continental Europe	➢ France, Austria, Switzerland, Germany, Denmark, Sweden, Norway etc. ➢ Poland, Hungary, Bulgaria, Russia etc. ➢ Italy, Spain, Portugal
Antipodean	➢ Australia, New Zealand ➢ Pacific Islands Fiji, Tonga, Suva, Tahiti etc.

International Culinary Cultures

1. **South African cuisine**

The cuisine in South Africa is a blend of many different cultural influences. Dutch, French, Indian, and Malaysian flavours, and techniques are all prominent, resulting in a blend of textures, tastes, and aromas. Dutch colonialism in South Africa during the 1600s had a significant impact. Soon after, French and German colonists joined them. This combination led to the development of a large variety of South African cooking styles. Traditional African foods are the most diverse and include a wide variety of different subcultures under the "African" umbrella. They include Zulu, Xhosa, Sotho, and Tswana, among others. As these people have lived in Africa for centuries, their cuisine has evolved over time but has also maintained many of its original ingredients and cooking methods, particularly in rural areas. As the indigenous African tribes have depended on the produce of the land for generations, their food was (and still is, to a degree) determined by what was locally grown and available.

Recipes and ingredients

A typical South African meal consists of plenty of red meat (grilled, barbecued or roasted), potatoes and/or rice, and vegetables that are enhanced with butter and sugar. The most popular desserts (or desserts) are usually based on old favourites that usually only last a few days. Pastries, biscuits, and rusks fall into this category. One of South Africa's best-known cuisine types is the "braai". Spiced sausages, chops, kebabs, steaks, and pork rashers are grilled over hot coals, giving them an unusual smoky flavour. Since this type of cooking is usually done outdoors, it is a particularly social activity. Various kinds of salads and bread rolls are offered as side dishes. South Africa is also known for their dried meats (biltong,

which is like jerky, and dröewors, a dried sausage), as well as their liberal use of spices and salt for preservation.

Several filling staples are included as well, such as rice, maize, and potatoes, which are easy to cultivate and able to feed large families. Green, leafy varieties of vegetables are important to South African communities. Meat plays a significant role in African cooking. Traditionally, meat has been obtained from their own livestock. Thus, it had to be used sparingly and wisely (and often only on special occasions). Thus, stews and other "one-pot" will be typical dishes of this kind of cuisine. The food of South Africa includes tripe, mielie (corn-based porridge fortified with meat fat, beans, and vegetables), samp and beans, sour milk porridge, etc.

Cape Malay cuisine, particularly prevalent in the Western Cape, has influenced most of the country. There are often spices (such as cinnamon, cardamon, and coriander) and chillies added to the food. Pickled fish, spicy curries and a variety of stews are popular dishes.

There is also a great variety of unusual dishes in South Africa, thanks to the variety of wildlife. Crocodile, ostrich, kudu, sheep heads, Mopane worms (Venda cuisine), and warthog are examples. Due to South Africa's tourist influences, its restaurants serve a wide variety of international cuisine types as well. Among these are Eastern favourites (Thai, Chinese,



Japanese, Vietnamese, etc.) as well as German eateries, English cafés, Moroccan food stalls, and American-style diners.

2. Pan-African cuisine

African cuisine is a generalized term collectively referring to the cuisines of Africa. Africa is the second largest continent on earth and is home to hundreds of different cultures and ethnic groups. This diversity is also reflected in many local culinary traditions in terms of choice of ingredients, style of preparation and cooking techniques.

In Africa, food preparation is a labour of love, whether you are sowing seeds, rearing livestock, gathering wood to fuel the fire, or pumping water and carrying it back home.

Food is more than nutrition; it is a time for sharing. Meals are communal and are eaten with the hands. By touching the food, feeling it, eating becomes a delightfully relaxing and intimate activity. African cooking has always been wonderfully sociable. In most traditional African villages, you can still see the woman sitting under a tree, shelling nuts, or singing, chanting, and chatting as they rhythmically pound corn with a large, hand carved pestle and mortar, called *le hudu* and *le mose*. It is a place for laughter and gossip, for building the close family bonds that are the envy of other cultures. Their utensils used are very basic and easily found, for example, the stones that are used for cracking nuts are used for generations, their shapes evolving through continual wear.

In Africa many hours are spent choosing appropriate stones, weaving beautiful baskets, making sturdy clay pots, and carving and decorating gourds.



Recipes and ingredients

Recipes are traditionally passed on from generation to generation by word of mouth and hardly ever rely on exact quantities. A handful, a calabash (a hollowed gourd) or a mug are the usual forms of measurement and cooks rely on feel, taste, and memory.

Seasonal fresh produce like chillies, beans, mielies and pumpkins are dried often on the roofs of homes or specially built huts, as a preservation method so that they can be stored and used in cooking throughout the year. Traditionally the various cuisines of Africa use a combination of locally available fruits, cereal grains, and vegetables, as well as milk and meat products. In some parts of the continent, the traditional diet features a multitude of milk, curd, and whey products. In much of Tropical Africa, cow's milk is rare and cannot be produced locally (owing to various diseases that affect livestock). Depending on the region, there are also sometimes quite significant differences in the eating and drinking habits and tendencies throughout the continents, Central Africa, East Africa, the Horn of Africa, North Africa, Southern Africa, and West Africa each have their own distinctive dishes, preparation techniques and feasting traditions.

Central Africa

This region stretches from the Tibesti Mountains in the north to vast rainforest basin of the Congo River and has remained largely free of culinary influences of the outside world, until the late 19th century, apart from the widespread cassava, peanut and chilli pepper plants which arrived which arrived along with the slave trade during the early 16th century. These foodstuffs have had a large influence on the local cuisine, perhaps less on the preparation methods. Central African cooking has remained mostly traditional Nevertheless, like other parts of Africa, Central African cuisine also presents an array of dishes.

The basic ingredients are plantains and cassava. Fufu-like starchy foods (usually made from fermented cassava roots are served with grilled meat and sauces. A variety of local ingredients are used while preparing other dishes like spinach stew, cooked with tomato, peppers, chillies, onions, and peanut butter. Cassava plants are also consumed as cooked greens. Groundnut stew is also prepared, containing chicken, okra, ginger, and other spices. Another favourite is Bambara, porridge of rice, peanut butter, and sugar. Beef and chicken are favourite meat dishes, but game meat preparations containing crocodile, monkey, antelope, and warthog are also served occasionally.

East Africa

The cuisine of East Africa varies from area to area.

In the inland savannah, the traditional cuisine of cattle keeping peoples is distinctive in that meat products are generally absent. Cattle, sheep, and goats were regarded as a form of currency and a store of wealth and are not generally consumed as food.

In some areas, traditional people consume the milk and blood of cattle, but rarely the meat. Elsewhere, other peoples are farmers who grow a variety of grains and vegetables.

In Uganda, green bananas called matoke provide the starch filler of any meal. Maize (corn) is the basis of ugali the East African version of West Africa`s fufu. Around 1000 years ago, the Arabs settled in the coastal areas of East Africa, and the Arab influences are especially reflected in the Swahili Cuisine of the coast-steamed, cooked rice with spices in Persian style, use of saffron, cloves, cinnamon and several other spices, and pomegranate juice. The main traditional dishes in Eritrean cuisine are tshebis (stews) served with injera (flatbread made with, wheat or sorghum. Resembles a sour pancake) and hilbet (paste made from legumes, fava beans). Eritrean food habits vary regionally. In the Highlands, injera is the staple diet and is eaten daily among the Tigrinya.

When eating diners generally share food from a large tray placed in the centre of a long dining room table. Numerous injera are layered on this tray and topped with various spicy stews. Diners then break into the section of injera in front of them, tearing off pieces and dipping them into stew.

In the lowlands, the main dish is akelet, porridge like dish made from wheat flour dough. A ladle is used to scoop out the top, which is filled with berbere (a spice mixture) and butter sauce and surrounded by sour milk or yoghurt. A small piece of dough is broken and then used to scoop up the sauce.

Traditional Ethiopian cuisine employs no pork or shellfish of any kind, as they are forbidden in the Islamic, Jewish, and Ethiopian Orthodox Christian faiths. It is also very common to eat from the same dish in the centre of the table with a group of people. Somali cuisine varies from region to region and consists of an exotic mixture of diverse culinary influences. Despite the variety, there remains one thing that unites the various regional cuisines; all food is served halal. There are therefore no pork dishes, and no blood is incorporated.

Qaddo or lunch is often elaborated. Varieties of bariis (rice) the most popular probably being basmati, usually served as the main dish. Spices like cumin, cardamom, cloves, cinnamon, and sage are used to aromatize these different rice dishes.



North Africa

North Africa is situated along the Mediterranean Sea and includes several nations, including Morocco, Algeria, Libya, Tunisia, Mauritania and Egypt, and the cuisine and culinary style of North Africa are as diverse as the land, its people, and its history. Most of the North African countries have several similar dishes, sometime almost the same dish with a different name for example, A meat stew which is cooked overnight in a communal oven, in Morocco it

will be called a Tangia but in Tunisia it will be called a Coucha. However, it is important to remember that the opposite is also present, where the dishes can share the same name but are completely different, for example, a Tagine/Tajine; in Morocco can be referring to a slow cooked stew, whereas in Tunisia it could be a baked omelette or quiche dish. There are noticeable differences between the cooking styles of the different nations, there`s the refined full-bodied flavours of Moroccan palace cookery, the fiery dishes of Tunisian cuisine and the humbler, simpler cuisines of Egypt and Algeria

West Africa

A typical West African meal is heavy with starchy items, meat, spices, and flavours. The starch or staple grain varies from region to region and ethnic group to ethnic group. Although corn has gained significant ground as it is cheap, swells to greater volumes and creates a beautiful white product that is greatly desired. Banku and Kenkey are maize dough products and Gari is made from dried grated cassavas. Rice dishes are also widely eaten in the region; especially in the inland. Centuries before the influence of Europeans, West African people were trading with the Arab world and spices like cinnamon, cloves and mint were known and became part of the local flavourings. Centuries later the Portuguese, French and British had a limited influence on the regional cuisines. It was, however, the European explorers who introduced the American chile or chilli (capsicum) to Africa sometime soon after Columbus sailed to America, and both chilies and tomatoes have become abundant components of West African cuisines.

TABLE 6: WEST AFRICAN COOKING HABITS

COOKING HABITS	
PAST	**PRESENT**
Less meat Native oils (palm oil) Local greens were abundant	More meat Increased salt and oil intake Combination of meat and fish dishes

Flaked and dried fish is often fried in oil and sometimes cooked in sauce made up with hot peppers, onions and tomatoes various spices and water to prepare a highly-flavoured stew. In some areas, beef and mutton and goat are favoured with goat meat being the dominant red meat. Suya-a popular grilled spicy meat kebab flavoured with peanut and other spices is sold by street vendors as a tasty snack or evening meal and is typically made with beef or chicken.

TABLE 7: BASIC INGREDIENTS IN THE AFRICAN KITCHEN

Morogo (spinach)	Referred to the leaves of edible plans
Buttermilk	The low-fat milk which is left from the butter making process Usually used in baking and meat marinades.
Chilies	Grow well in the African climate, and are rich in Vitamin A and C
Mielies (corn)	Can be eaten fresh or dried, as whole or can be ground to form Mielie meal. The kernels of mielies are not as sweet and are chunkier than sweet corn.
Peanuts	The seeds of this plant ripen underground, and the leaves which are high in protein are fed to cattle. These nuts can be eaten as a snack or used as part of a meal.
Pineapples	A sweet fruit which is grown in the sub-tropics of Africa. Imfulafula is a home brewed beer made from pineapple.
Bananas and plantains	Unripen bananas can be used as a substitute for plantains. Plantains are unpalatable and bitter cannot be eaten raw. It is used in sweet and savoury dishes. The leaves are used for wrapping food prior to coking.
Pumpkin and squashes	There are various varieties; the flat white "Boer Pumpkin" is typical to South Africa. The seeds are rich in essential oils and can be used is cooking or as a snack.

Spices	A large variety of spices are available in Africa as they played an important role in the trading history if the continent. Spices can be toasted prior to use to intensify its flavour.
Sweet potatoes	These vegetables are used to as a celebratory item for many events and occasions. They are high in fibre and used in sweet and savoury dishes.

3. French Cuisine



France is a country in which everyday men and women have a strong awareness for tradition, thus ensuring the abundance of the wonderful food found at the end of every road.

Beer and charcuterie are predominantly found in the east of France, fresh vegetables and garden herbs are found in the southern parts. Another distinct difference is the use of butter and oil, which differentiate the north and south.

Regions of France

Paris- Ile de France

This is also known as the good food capital of the world. Before it grew to what we know it today, Paris was supplied by various surrounding villages.

Les Halls-this is the well-known fresh produce market which was situated in the centre of the city. Later it became so popular that they then had to move the market and the area then became an underground shopping precinct.

Popular foods:

Baguettes- originated in the 18th century, is a type of bread with a golden crispy crust and soft springy inside. It is estimated that 10 million baguettes are sold per day.

Parisian Breakfasts- this consists of baguettes, croissants, brioche, or a fruit bun which is served with butter and jam.

Types of Eating Establishments in Paris

- **Restaurant**- offers á la carte and table d'hôtel menus
- **Bistro**- smaller and more informal than restaurants, less menu variety
- **Bistro á Vin**- bistros which offer a wide variety of wines and drinks
- **Brasseries**- an establishment with a German influence on the menu
- **Café**- often serve coffee and alcoholic beverages, chairs and tables are usually set up outside

- **Salon de Thé**- a tearoom which serves a selection of cakes and generally no alcoholic beverages are served
- **Bar**- American style, usually with a musical backdrop and are themed social places

Champagne, Lorraine, Alsace

Found in the North-east of the country, this region is famous for its cheeses, game, and ham. The people of Lorraine and Alsace are the leaders of smoking and pickling, preparing pâtés and terrines and the preparing of various types of sausages. The region of Alsace, been on the boarder of Germany has thus created its own traditions.

Champagne - this is only made in two cities, Epernay, and Reims. On average 260 million bottles of champagne can be produced in a year, however this number can drop to almost two-thirds due to bad weather and bad frost which can be experienced.

Nord-Pasde Calais, Picardie, Normandie, Bretagne

This northern area of France boarders the Atlantic Ocean and has an abundant supply of scallops, lobster, crayfish, mussel and sole. This region also thrives on their dairy farms and is home to the well-known Camembert cheese amongst others. Apples are also prominent in this area and therefore the production of cider and calvados.

Pay de Loire, Centre

Also known as the Garden of France, this area is rich in cherries and pears and many other fruits and vegetables are grown here. The Loire River also provides various types of fish such as carp, bream, red mullet, and pike.

Popular foods:

Rillettes - this is made up of 2 parts pork belly, shoulder, and gullet and one-part bacon fat and lard. This meat is slowly braised in the melted fat.

Andouillettes - these are sausages which are made from seasoned intestines and is cooked in stock.

Burgundy, Franche-Comté

This region is most famous for its wines and is divided into 4 regions most of which are forested. The mountainous areas are well known for their smoked products as well as their cheeses.

The area of Dijon is also famous for honey, mustard, and blackcurrant liqueur.

Popular foods:

Gougéres-cheese puffs which are made using a milk choux paste and cheese.

Pain d'epices- a spiced honey cake, served with red wine poached pears and blackcurrant sherbet.

Coq au vin and Boeuf Bourguignon are also famous dishes if this region.

Lyon/ Rhône-Alpes

This region as big as Switzerland, has an abundance of fruit and vegetables as well as a rich supply of poultry and guinea fowls. This area is also famous for their sausages and cheeses, and some of the most influential chefs are from this region.

Popular foods:

Salade Lyonnaise - a salad of bacon, garlic croutons, and a poached egg dressed with mustard vinaigrette.

Hérison-the chocolate hedgehog.

Poitou-Charentes/ Limousin

Previously famous for its rich supply of salt and is now renowned for its abundance of oysters and mussels. Some of the best butters and creams are also produced in the region of Poitou. The widespread woodlands have an abundance of game and are a paradise for mushroom pickers.

Popular foods:

Echiré- the most famous French butter is produced in this area.

Bordeaux/ Périgord/ Gascogne/ Pays Basque

Across the world, this area is most famous for its Cabernet Sauvignon, Merlot, Malbec, and Petit Verdict. This area is also renowned for its deep-sea fishing of cod. These areas are also well-known for their pâtés, terrines, and confits.

Popular foods:

Poulet au Pot- this is a stuffed chicken which is cooked in water with vegetables and is served in the broth with bread.

Confit - can be either of duck or goose. The meat of these birds is cut up and salted for one to two days and then gently cooked in its own fat before being bottled and covered with the same fat and kept for up to a year's

Toulousain/ Quercy/ Aveyron/ Auvergne

This region is most famous for its cassoulet, which is the gastronomic dish of the Toulousains. The central area is renowned for its cheese production.

Popular foods:

Millas - this is a white ground corn product, is prepared in the same way as the Italian polenta and is cut into slices and fried before serving.

Green Puy Lentils - also referred to as 'the poor man's caviar', is abundant and commonly used in southern cooking.

Roussilon/ Languedoc/ Les Cévennes

Some ingredients of this vicinity include mushrooms, chestnuts, berries, and honey.

The natives of this region are known to be Frances biggest consumers of snails which are cooked on grill over hot coals and served with bread and aioli.

Popular products:

Vermouth - aperitif made of wine, absinthe, herbs, and spices.

Byrrh - wine aperitif made from unfermented red grape and the extract of bark, dried orange peel, cocoa, and coffee beans.

Provence/ Cote d'Azur

This region is the biggest supplier of fruit, vegetables, and herbs. It is also the largest olive producer.

Popular foods:

Bouillabaisse - a rich fish soup is originally made on the beach using sea water.

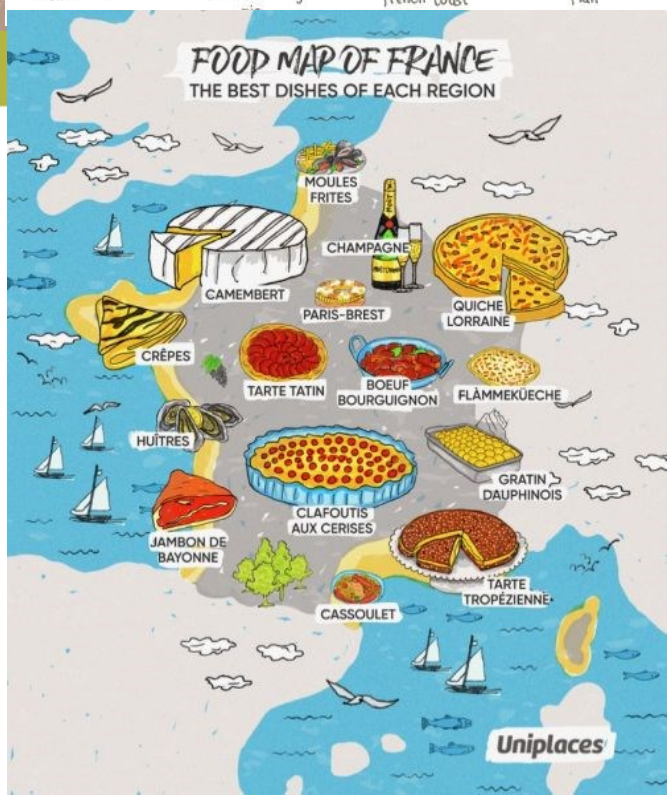
Aioli - a sharp mayonnaise made with garlic and olive oil.

Ratatouille -famous vegetable dish is very popular among people of this region.

FIGURE 17: MAP OF FRENCH CUISINE







4. Italian Cuisine

Italian cuisine is known to be one of the most influential and popular food styles in the world today. Historically, Italian cuisine was restricted to the regions where the food was grown, e.g., northern region was rich in rice and polenta where the southern region is famous for producing auberges. Due to the upgraded transport system and technology advances this restriction slowly disappeared. However, local food is still very much alive; with the skills needed to produce specific foods like cheese and wine remain in the areas of origin.

Northern Italy

The cuisine from this region has been shaped by the influence of its northern neighbours and mountainous landscape. Polenta and rice are the staple foods of this area; they also produce some of the best wines and dairy products in the country. Food is mainly cooked with butter and the pasta is made fresh with eggs.



TABLE 8: NORTHERN ITALIAN FOODS BY REGION

Region	Famous for
Piemonte	Alba Truffle, Pastries, Fine chocolate
Valle d'Aosta	Alpine cheeses- Fontina, Toma, Robiola
Lombardia	Fine cheeses- Gorgonzola, Taleggio, Grana Padano
Liguria	Basil, Focaccia, Walnut sauce
Trentio-Alto Adige	Cured ham, Polenta, and bread with meals
Veneto	Pasta e fagioli (beansoup), Risi e bisi (risotto), Seafood dishes
Fruili-Venezia Giulia	Prosciutto di San Danielle

Central Italy

The central area of Italy encompasses some of the well-known gastronomic regions of Italy. It is an area which is rich in the production of fresh pasta, great cheeses as well as robust wines.



TABLE 9: CENTRAL ITALIAN FOODS BY REGION

Region	Famous for
Emilia-Romagna	Prosciutto di Parma Mortadella
Le Marche	Adriatic seafood Brodetto (rich fish stew) White and black truffles Fennel Wild mushrooms
Tuscany	Finest extra virgin olive oils Bean dishes Spicy cakes like panforte
Umbria	Truffles Wild mushrooms Pecorino cheese

	Pork dishes Lentils



Food from the South of Italy

The south of Italy is home to roust resourceful style of cooking, using whatever is available; sun-ripened vegetables and fruit, wheat for dried pasta as well as local cheeses. Food is prepared using olive oil and tends to have stronger flavours than that of the north due to the use of herbs and aromatics.

TABLE 10: SOUTHERN ITALIAN FOODS BY REGION

Region	Famous for
Lazio	Roman cuisine- pasta, beans, artichokes Spaghetti alla cabonara Guanciale (cured pig's cheek)
Abruzzo and Molise	Traditional rural cooking Fine lentils, pasta, olive oils Saffron is grown here
Campania and Naples	Spaghetti and tomatoes with basil Pizza topped with mozzarella Aubergine parmigiana Cheeses- mozzarella, ricotta and goats
Puglia	Orecchiette (ear shaped pasta) Cime di rapa (tunip greens) Pecorino cheese
Basilicata	Peasant food- rich in vegetables and pasta Dishes spiced with pepperoncino
Calabria	Seafood- swordfish and tuna Citrus fruit Figs and olives
Sicily	Dolci (sweets)

	Seafood Capers Citrus fruit Granite and Gelati

Glossary of Italian Food and Cooking

- **Al dente** - meaning "to the tooth". Pasta and rice which is cooked until the outer surface is tender, but the center still remains firm.
- **Amaretto** - small almond flavored biscuits.
- **Bocconcini** - "small mouthful". Refers to small balls of mozzarella.
- **Bresaola** - lean beef which is cured and air-dried for 2-3 months is served very thinly sliced.
- **Cantucci** - Tuscan almond biscuits, twice baked and contains whole almonds.
- **Caper berries** - the fruit of the caper bush, usually preserved in brine.
- **Capers** - pickled flower of the caper bush are preserved in brine vinegar or salt.
- **Cardoons** - like artichoke plant, they have large leaves and long stems. The stems are eaten and not the flowers.
- **Casalinga** - means home-made, when referring to sausages, it means coarse texture.
- **Cavolonero** - cabbage with long leaves which are dark green almost black in colour.
- **Cetriolini** - refers to small gherkins.
- **Ciabatta** - slipper shaped Italian bread with rough open texture. It is made using wet dough to allow large bubbles to form with a thin crust.
- **Cipolline** - small white onions, usually has a flat appearance rather than round.
- **Coppa** - cured pork, made from the pig's neck and shoulder. It is rolled and cured in a casing.
- **Cotechino** - a sausage made from pork and pork rind usually has a gelatinous texture. Flavoured using cloves and cinnamon.
- **Croccante** - caramelized nuts which can be almonds or hazelnuts.
- **Doppio zero (00) flour** - the finest grade of flour, made using soft wheat and used for making cakes and fresh egg pasta.
- **Farro** - a type of spelt grain, used in soups and stews in a similar way to barley.
- **Finocchiona -** a fennel flavoured salami from Tuscany. Aged for a year prior to use.
- **Fontina -** a traditional mountain cheese which is semi-soft and has a slightly sweet flavour, it melts well and is preferred for cooking.
- **Grana parmigiana** - grana meaning grainy, is a hard cheese. Only grana made in the region of Parma can be called Parmigiano-Reggiano.
- **Gorgonzola** - a blue cheese made in the region of Lombardian. It is often used in many sauces as it melts well.

- **Marsala** - a fortified wine made from Marsala in Sicily comes in a varying degree of sweetness and dryness.
- **Mascarpone** - a cream cheese made using cream instead of milk, with a high fat content and used mainly in desserts but can be used in sauces as well.
- **Misticanza** - previously was a salad made of wild greens, now the salad is made using rocket, purslane, sorrel, mint, dandelion, wild fennel and endive. In Umbria, this is used to refer to a mixture of dried beans used for soups.
- **Mortadella** - a large finely textured pork sausage sometimes containing pistachio nuts and is served in cubes or thinly sliced.
- **Olive oil** - these are oils which are pressed without the use of any heat or chemicals and is best served uncooked with salads.
- **Pancetta** - cured belly of pork, like streaky bacon. Is readily available either flat or rolled up, smoked or un-smoked.
- **Parma ham** - a type of prosciutto which comes from traditionally reared pigs which eat the whey from making Parmagiano-Reggiano. This sweet like ham is only flavoured using salt.
- **Passata** - meaning puréed usually refers to the smooth uncooked tomato pulp which can be purchased in bottles or tins.
- **Pecorino** - this is one of Italy's most popular cheeses, as a different version is produced is each region. Preparation method is always the same and sheep's milk is used.
- **Pepperoncini** - the Italian name for chilies, used mainly in southern cooking.
- **Polenta** - this is the name of a dish as well as the ingredient. A ground corn, which comes in a variety of coarseness. Can be used in both cakes or as an accompaniment with stews.
- **Porcini** - the Italian name for a cep or boletus mushroom. Usually comes dried and reconstituted in boiling water.
- **Prosciutto** - Italian name for ham. Prosciutto cotto is cooked ham.
- **Radicchio** - a slightly bitter red salad leaf comes from the chicory family.
- **Soffritto** - the flavour base used for many soups, stews and risottos. Translates to "under-fry" and the mixture is sweated and not coloured.
- **Taleggio** - a mountain cheese originally comes from the Italian Alps. The flavour becomes more acidic with age.
- **Vin santo** - a golden dessert wine eaten with cantucci biscuits

5. North American cuisine



North American cuisine consists of foods native to or popular in countries of North America, such as Canadian cuisine, American cuisine, Mexican cuisine, and Central American cuisine. North American cuisines display influence from many international cuisines, including Native American cuisine, Jewish cuisine, Asian cuisine, and especially European cuisine.

As a broad, geo-culinary term, North American cuisine also includes Central American and Caribbean cuisines. These regions are part of North America, so these regional cuisines also fall within the penumbra of North American cookery.

The term "regional" is somewhat ambiguous, however, since the cuisine of Puerto Rico can differ markedly from Cuban cuisine; Mexican cuisine spills across the border into the Tex-Mex and Mexi-Cali "sub-cuisines"; and the cuisines of Michigan and Ontario have more in common with each other than either has with the cuisines of Manitoba or Iowa.

Mexico



Mexican cuisine is a style of food which is primarily a fusion of indigenous Mesoamerican cooking with European, especially Spanish, cooking developed after the Spanish conquest of the Aztec Empire. The basic staples remain the native corn, beans and chili peppers but the Spanish introduced a large number of other foods, the most important of which were meat from domesticated animals (beef, pork, chicken, goat and sheep), dairy products (especially cheese) and various herbs and spices. While the Spanish initially tried to superimpose their diet on the country, this was not possible and eventually the foods and cooking techniques

began to be mixed, especially in colonial era convents. Over the centuries, this resulted in various regional cuisines, based on local conditions such as those in the north, Oaxaca, Veracruz and the Yucatan Peninsula. Mexican cuisine is highly tied to the culture, social structure and its popular traditions, the most important example of which is the use of mole for special occasions and holidays. For this reason and others, Mexican cuisine was added by UNESCO to its list of the worlds "intangible cultural heritage".

Basic Elements



Mexican cuisine is complex, as complex as any of the great cuisines in the world such as those of China, France, and Turkey. It is created mostly with ingredients native to Mexico as well as those brought over by the Spanish conquistadors, with some new influences since then. Native ingredients include tomatoes, squashes, avocados, cocoa, and vanilla, as well as ingredients not generally used in other cuisines such as various edible flowers, vegetables such as huauzontle and papaloquelite or small criollo avocados, whose skin is edible. European contributions include pork, chicken, beef, cheese, various herbs and spices and some fruits. Tropical fruits such asguava, prickly pear, sapote, mangoes, bananas, pineapple and cherimoya (custard apple) are popular, especially in the centre and south of the country. It has been debated how much Mexican food is still indigenous and how much is European. However, the basis of the diet is still corn and beans with chilli pepper as a seasoning as they are complimentary foods.

Despite the introduction of wheat and rice to Mexico, the basic starch remains corn in almost all areas of the country. While it is eaten fresh, most corn is dried, treated with lime and ground into dough. This dough is used fresh and fermented to make a wide variety of dishes from drinks (atole, pozol, etc.) to tamales, to sopes and much more. However, the most common way to eat corn in Mexico is in the form of a tortilla, which accompanies almost

every dish in Mexico. Tortillas are made of corn in most of the country, but other versions exist such as wheat in the north or plantain, yuca and wild greens in Oaxaca.

The other basic ingredient in all parts of Mexico is the chilli pepper. Mexican food has a reputation for being spicy, but its seasoning can be better described as strong. Many dishes also have subtle flavours as well. In Mexico, the various chilli peppers are used for their flavours and not just their heat, with Mexico using the widest variety of chilli peppers. If a savoury dish or snack does not contain chilli pepper, hot sauce is usually added, and chilli pepper is often added to fresh fruit and sweets. The importance of the chilli pepper goes back to the Mesoamerican period, which it was as much of a staple as corn and beans. Many dishes in Mexico are defined by their sauces and the chilli peppers those sauces contain, rather than the meat or vegetable that the sauce covers. These dishes include entomatada (in tomato sauce), adobo or adobados, pipians and moles. A hominy soup called pozole is defined as white, green, or red depending on the chilli pepper sauce used or omitted. Tamales are differentiated by the filling which is defined by the sauce (red, green, chilli pepper strips or mole).

Dishes without a sauce are nearly inconceivable to eat without a salsa or with fresh or pickled chilli peppers. This includes street foods such as tacos, soups, sopes, tlacoyos, gorditas and synchronizes. For most dishes, it is the variety of chilli used that gives it its main flavour.

The main contributions of the Spanish were meat and cheese, as the Mesoamerican diet had very little meat and dairy products were completely unknown. The main meats found in Mexico are pork, chicken, beef, goat and sheep. Native seafood remains popular especially along the coasts. Cheese making in Mexico has evolved its own specialties. It is an important economic activity, especially in the north, and frequently done at home. The main cheese making areas are Chihuahua, Oaxaca, Querétaro and Chiapas. Goat cheese is still made but it is not as popular and harder to find in stores.

Types of Mexican Food



- **Tortillas:** This is known as the bread of the Mexican people. These pancakes are made of cornmeal or flour and are eaten in several ways. They may be served plain, fried or baked, either flat or folded and topped with various fillings. Crispy fried pieces of tortillas are used as a garnish or for dipping into sauces.
- **Tostadas:** These are tortillas deep fried whole and piled high with savoury assortments.
- **Enchiladas:** Are folded stuffed tortillas, usually topped with a sauce, and baked.
- **Tacos:** Are plain tortillas stuffed, rolled and sometimes deep fried. They are the Mexican equivalent of sandwiches.
- **Salsa:** Is used as a dip, garnish to top tacos, burritos, etc. Salsa can be made with green or red chilli and can be very mild or hot. They can also be made with raw or cooked ingredients and with or without tomatoes. The word salsa comes from the Spanish word for sauce.
- **Mole:** This is a paste of chillies, spices, peanuts, cocoa or chocolate, breadcrumbs, or corn tortilla pieces. It is a thick, rich sauce which can vary in ingredients which results in many versions. Mole is used as a sauce for turkey, chicken, pork, and fish.
- **Nachos:** Crisp corn chips served with a variety of toppings, commonly featuring beans and guacamole.
- **Empanadas:** Bite sized filled pies that are fried rather than baked.
- **Quesadillas:** Two tortillas are filled with a thin layer of filling and sealed. They are fried then cut into wedges.
- **Ceviche:** A fish dish, in which fish pieces are marinated in a strong acid mixture of vinegar and lime juice and allowed to chill for up to a day. The acid content “cooks” the fish, which is then served with tortillas, avocado and lettuce.
- **Tamales:** Are mixtures of chicken, pork, or vegetables, wrapped in dough and sometimes also a banana leaf or corn husk and then steamed.
- **Refried Beans:** Cooked beans that are mixed with onions and other seasonings, which are fried to remove the water content. As they fry, the crispy brown crust that forms on the base of the pan is scraped back into the mixture.

Drinks



Mexico is the oldest wine producing country in the Americas. Nowadays a great proportion of the grapes now grown are dried, table grapes or used for brandy. With recent investment in vineyards, cellar technology and training, good quality wines are being produced from varieties which include Merlot, Cabernet Sauvignon, Petite Syrah, Chenin Blanc and Colombard. The most popular drink is beer. Alcoholic drinks of various strengths are distilled from the yucca and the agave plants like tequila.

United States of America

The cuisine of the United States refers to food preparation originating from the United States of America. European colonization of the Americas yielded the introduction of several ingredients and cooking styles to the latter. The various styles continued expanding well into the 19th and 20th centuries, proportional to the influx of immigrants from many foreign nations; such influx developed a rich diversity in food preparation throughout the country.

One characteristic of American cooking is the fusion of multiple ethnic or regional approaches into completely new cooking styles. Asian cooking has played a particularly large role in American fusion cuisine. Similarly, some dishes that are typically considered American have their origins in other countries. American cooks and chefs have substantially altered these dishes over the years, to the degree that the dishes now enjoyed around the world are



American. Hot dogs and hamburgers are both based on traditional German dishes, pizza is based on traditional Italian dishes, brought by Italian immigrants to the United States, but in their modern popular form they can be reasonably considered American dishes.

Regional Cuisines

New England - New England is a North-eastern region of the United States, including the six states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The Native American cuisine became part of the cookery style that the early colonists brought with them. The style of New England cookery originated from its colonial roots. Much of the cuisine started with one-pot cookery, which resulted in such dishes as succotash, chowder, baked beans, and others. Lobster is an integral ingredient to the cuisine, indigenous to the coastal waters of the region. Other shellfish of the coastal regions include little neck clams, sea scallops, blue mussels, oysters, soft shell clams and razor shell clams.

Pacific & Hawaiian - Hawaiian regional cuisine covers everything from wok-charred ahi tuna, opakapaka (snapper) with passion fruit, to Hawaiian island-raised lamb, beef and aquaculture products such as Molokai shrimp. Includes a broad variety of produce - most notably tomatoes, strawberries, mushrooms, sweet Maui onions and tropical fruits such as papayas, mangoes, lilikoi (passion fruit) and lychee.

Midwest - Midwestern cuisine covers everything from barbecue to the Chicago-style hot dog. Midwestern cuisine is a regional cuisine of the American Midwest. It draws its culinary roots most significantly from the cuisines of Central, Northern and Eastern Europe, and is influenced by regionally and locally grown foodstuffs and cultural diversity. Everyday Midwestern home cooking generally showcases simple and hearty dishes that make use of the abundance of locally grown foods.

The South - The cuisine of the American South has been influenced by the many diverse inhabitants of the region, including Americans of European descent, Native Americans and African Americans. The cuisine of the American South, along with the rest of its culture, is one of the most distinct in all the country.

The West - Cooking in the American West gets its influence from Native American and Mexican cultures and other European settlers into the part of the country. Common dishes

vary depending on the area. For instance, the Northwest relies on local seafood, while in the South, Mexican flavours are extremely common.

New American Cuisine

New American cuisine is a term for upscale, contemporary cooking served primarily in restaurants in the United States. Combining flavours from America's melting pot with traditional techniques, New American cuisine includes ethnic twists on old standbys, Old World peasant dishes made from luxury American ingredients and molecular gastronomy.
It developed in the 1980s and features significant creative use of in-season produce and sauces. It is somewhat related to the French_Nouvelle cuisine and often incorporates influences from Latin American, Mediterranean, and Asian cuisine.

6. South American cuisine



Some of the richest products of South American cuisine come from the middle of the continent, the Amazonia. In countries like Peru, there is a strong influence of the Inca and their cuisine. Potatoes are frequently grown because of this, and plants such as quinoa. On the Southern tip of South America lies the Pacific Ocean, which provides a large array of seafood. Many plains are also on this continent, which are rich for growing food in abundance. In the Patagonia region south of Chile and Argentina, many people produce lamb and venison. King crab is typically caught at the southern end of the continent. Antarctic krill has just recently been discovered and is now considered a fine dish. Tuna and tropical fish are caught all around the continent, but Easter Island is one place where they are found in abundance. Lobster is also caught in great quantities from Juan Fernández. In Brazil, their most traditional dish is the feijoada.



Long before the Europeans discovered South America, the native populations knew how to cultivate an incredible array of plants. They developed elaborate irrigation systems and terraced the steep Andean Mountain slopes to make them more suitable for growing food. They grew corn, lima beans, potatoes, sweet potatoes, chilli peppers, avocados, peanuts, chocolate, and raised llamas and

guinea pigs. Each region developed its own traditional dishes. When the Europeans arrived, they incorporated some of these native dishes into their own cuisine. They took the new foods back to Europe, and they brought European foods to South America, such as pigs, chickens, citrus trees, wheat, almonds, cows, goats. The Europeans learned to make their favourite Spanish, Italian and Portuguese dishes using local ingredients. The Native American traditional cooking methods were adapted and modified, and the newly available foods from Europe were mixed in. Asian and African immigrants brought their culinary traditions as well. All this blended to become the diverse and exciting cuisine that exists today.

South American Cuisine

Some native foods were not incorporated into the European-style cuisine that dominates big cities like Buenos Aires and Santiago. But the indigenous populations continue to cultivate and eat them. Recently these foods have been rediscovered. Chefs in trendy restaurants now showcase Andean products such as alpaca meat, grains like quinoa and kwacha, and unusual tubers such as yuca and mace in sophisticated new ways. As more South Americans venture north with their cooking traditions and ingredients in hand, North Americans are getting the chance to sample these new foods and flavours. Nuevo Latino cuisine is one example of the global gastronomic exchange that happens today, a fusion of traditional Latin flavours with global food trends. The rest of the world has become interested in the cuisines of South America, and new combinations will emerge.

Key South American Ingredients



- **Corn (*Maiz, Choclo*)** has been cultivated in South America for more than 5,000 years and is possibly South America's biggest food contribution to the rest of the world. Corn is the key ingredient of many staple dishes such as *arepas* (cornbread), *tamales*, various *pasteles* (casseroles or savoury tarts) and *chicha*, an ancient yet still popular beverage.
- **Potatoes** rival corn as the oldest and most important South American crop. Hundreds of varieties of potatoes are still cultivated in the Andes today, so it's no surprise there's an infinite array of potato recipes. Potatoes are fried, mashed, freeze dried, baked and combined with sauces into many beloved dishes.

- **Peppers (*Ajis*)** are the most important seasoning ingredient in South American cooking. There are both sweet and hot varieties, and they are used in many creative ways, like in the colourful marinades for ceviche.
- **Tropical Fruit:** South American cuisine makes great use of the incredible assortment of tropical fruit available. Coconut, cherimoya, mango, guava, pineapple, papaya, lucuma, passion fruit - the list goes on and on. These fruits star in many delicious desserts, but also liven up savoury dishes and salads.
- **Queso fresco/ Queso Blanco:** This fresh cheese is another staple of South American cooking. Queso fresco is a lightly salted, unripened cow's milk cheese that's added to sauces and crumbled in salads.
- **Yuca (Manioc, Cassava)** the starchy edible root of the yuca plant is another very important food. It's especially popular in Brazil, where the root is ground, dried and roasted to make *farofa*, a key ingredient in the famous Brazilian dish *feijoada*, a pork and black bean stew. Other regions use a sweet variety of yuca that can be mashed or fried. Cassava flour is often used in baking, as in the delicious Brazilian cheese rolls Pão de Queijo.

Brazil



Brazilian cuisine was developed from indigenous, European, and African influences. It varies greatly by region, reflecting the country's mix of native and immigrant populations, and its continental size as well. This has created a national cuisine marked by the preservation of regional differences.

Ingredients first used by native people in Brazil included cassava, guaraná, açaí, cumaru and tacacá. From there, the many waves of immigrants brought some of their typical dishes, replacing missing ingredients with local equivalents. For instance, the European immigrants (primarily from Portugal, Italy, Spain, Germany, Poland, and Switzerland) were accustomed to a wheat-based diet, and introduced wine, leaf vegetables, and dairy products into Brazilian cuisine. When potatoes were not available, they discovered how to use the native sweet manioc as a replacement. The African slaves also had a role in developing Brazilian cuisine, especially in the coastal states. The foreign influence extended to later migratory waves -

Japanese immigrants brought most of the food items that Brazilians would associate with Asian cuisine today and introduced large-scale aviaries, well into the 20th century.

Root vegetables such as cassava (locally known as mandioca, aipim or macaxeira), yams, and fruit like açaí, cupuaçu, mango, papaya, guava, orange, passion fruit, pineapple, and hog plum are among the local ingredients used in cooking.

Some typical dishes are feijoada, considered the country's national dish and regional foods such as vatapá, moqueca, polenta andacarajé. There is also Caruaru, which consists of okra, onion, dried shrimp, and toasted nuts (peanuts and/or cashews), cooked with palm oil until a spread-like consistency is reached; moqueca capixaba, consisting of slow-cooked fish, tomato, onion, and garlic, topped with cilantro and linguiça, a mildly spicy sausage.

The national beverage is coffee and cachaça is Brazil's native liquor. Cachaça is distilled from sugar cane and is the main ingredient in the national cocktail, caipirinha.

Cheese buns (pães-de-queijo), and salgadinhos suchas pastéis, coxinhas, rissóis (from pierogy of Polish cuisine) and kibbeh (from Arabic cuisine) are common finger food items, while cuscuzbranco, milled tapioca, is a popular dessert.

Regional Cuisines of Brazil

There is not an exact single "national Brazilian cuisine", but an assortment of various regional traditions and typical dishes. This diversity is linked to the origins of the people inhabiting each region. For instance, the culinary in Bahia is heavily influenced by a mix of African, Indigenous and Portuguese cuisines. Chilli sauces and palm oil are very common. But in the Northern states, due to the abundance of forest and freshwater rivers, fish and cassava are staple foods. In the deep south like Rio Grande do Sul, the influence shifts more towards *gaucho* traditions shared with its neighbours Argentina and Uruguay, with many meat-based products, due to this region livestock-based economy - the churrasco, a kind of barbecue, is a local tradition.

- **Southeast Brazilian Cuisine -** Brazilian pine nuts (pinhão) grow in a tree (Araucaria angustifolia) that is abundant in the southern part of Brazil, and are a popular national snack, as well as a lucrative export. Rice and beans are an extremely common dish, as are fish, beef, and pork.
  - In Rio, São Paulo, and Minas Gerais, the feijoada (a black bean and meat stew rooted) is popular especially as a Wednesday or Saturday lunch. Also consumed frequently is picadinho (literally, minced meat), and/or rice and beans.
  - In Rio de Janeiro, besides the feijoada, a popular plate is any variation of grilled bovine fillet, rice and beans, farofa and French fries, commonly called Filé à Osvaldo Aranha. Seafood is very popular in coastal areas, as it is roasted chicken (galeto).
  - In São Paulo, a typical dish is virado à paulista, made with rice, tutu de feijão, salted kale and pork. São Paulo is also the home of pastel, a food consisting of thin pastry envelopes wrapped around assorted fillings, then deep fried in vegetable oil. It is popularly said to have originated when Japanese immigrants adapted Chinese fried wontons to sell as snacks at weekly street markets.
  - In Minas Gerais, the regional dishes include corn, pork, beans, chicken (including the very typical dish frango com quiabo, or "chicken with okra"), tutu de feijão (a paste of beans and cassava flour), and local soft ripened traditional cheeses.
  - In Espírito Santo, there is significant Italian and German influence in local dishes, both savoury and sweet. The state dish, though, is of Amerindian origin called moquecacapixaba (a tomato and fish stew prepared in a clay pot). The cuisine of Minas Gerais is also strongly influential there, with many restaurants serving that fare.
- **North Brazilian Cuisine -** The cuisine of this region, which includes the states of Acre, Amazonas, Amapá, Pará, Rondônia, Roraima, and Tocantins, is heavily influenced by indigenous cuisine. In the state of Pará, there are several typical dishes including: Pato no tucupi (duck in tucupi) – one of the most famous dishes from Pará.

- It is associated to the Círio de Nazaré, a great local Roman Catholic celebration. The dish is made with tucupi (yellow broth extracted from cassava, after the fermentation process of the broth remained after the starch had been taken off, from the raw ground manioc root, pressed by a cloth, with some water; if added maniva, the manioc ground up external part, that is poisonous because of the cianic acid, and so must be cooked for several days). The duck, after cooking, is cut into pieces and boiled in tucupi, where is the sauce for some time. The jambu is boiled in water with salt, drained and put on the duck. It is served with white rice and manioc flour.



- **Northeast Brazilian Cuisine -** The Brazilian North-eastern cuisine is heavily influenced by African cuisine from the coastal areas of Pernambuco through Bahia. The vatapá is a Brazilian dish made from bread, shrimp, coconut milk, finely ground peanuts and palm oil mashed into a creamy paste.
  - The acarajé is a dish made from peeled black-eyed peas formed into a ball and then deep-fried in dendê (palm oil). Often sold as street food, it is served split in half and then stuffed with vatapá and caruru. Acarajé is typically available outside of the state of Bahia as well, including the markets of Rio de Janeiro.
  - In other areas, more to the west or away from the coast, the plates are most reminiscent of the indigenous cuisine, with many vegetables being cultivated in the area since before the arrival of the Portuguese. Examples include baiao de dois, made with rice and beans, dried meat, butter, queijocoalho and other ingredients. Jaggery is also heavily identified with the Northeast, as it is carne-de-sol, paçoca (sweetened, ground peanuts, often compressed in small blocks) and bolo de rolo.
- **Southern Brazilian Cuisine -** In Southern Brazil, due to the long tradition in livestock production and the heavy German immigration, the red meat is the basis of the local cuisine.
  - Besides many of the pasta, sausage and dessert dishes common to continental Europe, *churrasco* is the term for a barbecue (similar to the Argentine, Uruguayan, Paraguayan and Chilean asado) which originated in southern Brazil. It contains a

variety of meats which may be cooked on a purpose-built "churrasqueira", a barbecue grill, often with supports for spits or skewers.

- Portable "churrasqueiras" are similar to those used to prepare the Argentine, Chilean, Paraguayan and Uruguayan asado, with a grill support, but many Brazilian "churrasqueiras" do not have grills, only the skewers above the embers. The meat may alternatively be cooked on large metal or wood skewers resting on a support or stuck into the ground and roasted with the embers of charcoal (wood may also be used, especially in the State of Rio Grande do Sul).

Popular Dishes

Rice and beans are an extremely popular dish, considered basic at table; a tradition Brazil shares with several Caribbean nations. Brazilian rice and beans usually are cooked utilizing either lard or the nowadays more common edible vegetable fats and oils, in a variation of the Mediterranean so Frito locally called refogado which usually includes garlic in both recipes (many Brazilians do not like garlic in rice, and not using garlic is the standard in restaurants) and sometimes onion, or even Welsh onions, parsley, fresh coriander and/or other herbs (again, it depends on personal tastes).

In variation to rice and beans, Brazilians usually eat pasta (including yakisoba, lamen, and bīfun), pasta salad, various dishes using either potato or manioc, and polenta as substitutions for rice, as well as salads, dumplings or soups of green peas, chickpeas, black-eyed peas, broad beans, butter beans, soybeans, lentils, moyashi (which came to Brazil due to the Japanese tradition of eating its sprouts), azuki, and other legumes in substitution for the common beans cultivated in South America since Pre-Columbian times.

It is more common to eat substitutions for daily rice and beans in festivities such as Christmas and New Year's Eve (the tradition is lentils), as follow-up of churrasco (mainly potato/carrot salads, called maionese, due to the widespread use of both industrial and home-made mayonnaise, which can include egg whites, raw onion, green peas, sweetcorn or even chayote squashes, and pronounced almost exactly as in English and French) and in other special occasions.

Either way the basis of Brazilian daily cuisine is the starch (most often a cereal), legume, protein, and vegetable combination. There is also a differentiation between vegetables of the verduras group, or greens, and the legumes group (no relation to the botanic concept), or non-green vegetables. There are Brazilians which eat both, daily or the most often they can, only vegetables of one group, or none, which again depends on personal tastes.

- Salgadinhos are small savoury snacks (literally salty snacks). Like Spanish tapas, these are mostly sold in corner shops and a staple at working class and lower middle-class familiar celebrations. There are many types of pastries:
- Pão de queijo (cheese bun, literally "cheese bread"), a typical Brazilian snack, is a small, soft roll made of manioc flour, eggs, milk, and minas cheese. It can be bought ready-made at a corner store or frozen and ready to bake in a supermarket and is gluten-free.
- Coxinha is a chicken croquette shaped like a chicken thigh.
- Kibe/Quibe: extremely popular, it corresponds to the Lebanese dish kibbeh and was brought to mainstream Brazilian culture by Syrian and Lebanese immigrants. It can be served baked, fried, or raw.
- Esfiha: another Middle Eastern dish, despite being a more recent addition to Brazilian cuisine they are nowadays easily found everywhere, especially in North-eastern, Southern and South-eastern regions. They are pies/cakes with fillings like beef, mutton, cheese curd, or seasoned vegetables.
- Pastéis are pastries with a wide variety of fillings. Like Spanish fried empanadillas, but of Japanese origin (and brought to Brazil by the Japanese diaspora). Different shapes are used to tell apart the different flavours, the two most common shapes being half-moon (cheese) and square (meat). Size, flavour, and shape may vary greatly.
- Empadas are snacks that resemble pot pies in a small scale. Filled with a mix of palm hearts, peas, flour and chicken or shrimp.
- Cuscuzbranco is a dessert consisting of milled tapioca cooked with coconut milk and sugar and is the couscous equivalent of rice pudding.
- Açaí, cupuaçu, starfruit, and many other tropical fruits are shipped from the Amazon Rainforest and consumed in smoothies or as fresh fruit. Other aspects of Amazonian cuisine are also gaining a following.

- Cheese: the dairy-producing state of Minas Gerais is known for such cheeses as Queijo Minas, a soft, mild-flavoured fresh white cheese usually sold packaged in water; requeijão, a mildly salty, silky-textured, spreadable cheese sold in glass jars and eaten on bread; and Catupiry, a soft processed cheese sold in a distinctive round wooden box.
- Pinhão is the pine nut of the Araucaria angustifolia, a common tree in the highlands of southern Brazil. The nuts are boiled and eaten as a snack in the winter months. It is typically eaten during the festasjuninas.
- Risoto (risotto) is a rice dish cooked with chicken, shrimp, and seafood in general or other protein staples sometimes served with vegetables, another very popular dish in Southern Brazil.
- Angu is a popular side dish (or a substitution for the rice fulfilling the "starch element" of use common in Southern and South-eastern Brazil). It is similar to the Italian polenta.
- Arroz com pequi is a traditional dish from the Brazilian Cerrado, and the symbol of Center-Western Brazil's cuisine. It is basically made with rice seasoned on pequi, also known as a souari nut, and often chicken.

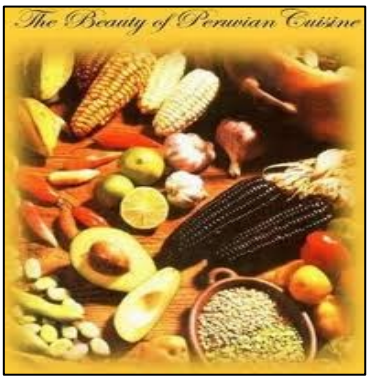
Special ethnic foods and restaurants that are frequently found in Brazil include Arab cuisine (Lebanese and Syrian), local variations of Chinese (nevertheless closer to the traditional than American Chinese cuisine), Italian cuisine, and Japanese cuisine (sushi bars are a constant in major metropolises, and people from Rio de Janeiro are more used to temaki than people from São Paulo, home of more than 70% of the Japanese diaspora in the country).



Pizza is also extremely popular. It is usually made in a wood-fire oven with a thin, flexible crust, little or very little sauce, and many interesting toppings. In addition to the "traditional" Italian pizza toppings, items like guava cheese and, banana and cinnamon, poultry (either milled chicken meat or smoked turkey breast) and catupiry, and chocolate are available. Traditionally olive oil is poured over the pizza, but in some regions, people enjoy ketchup, mustard and even mayonnaise on pizza - on Rio de Janeiro, for instance, a servant might be surprised if someone asks for olive oil instead of ketchup, more traditional regionally.

Broa, corn bread with fennel.

Peru



Peruvian cuisine reflects local practices and ingredients—including influences from indigenous peoples and cuisines brought in with immigrants such as Spanish cuisine, Chinese cuisine, Italian cuisine, West African cuisine, and Japanese cuisine. Without the familiar ingredients from their home countries, immigrants modified their traditional cuisines by using ingredients available in Peru. The three traditional staples of Peruvian cuisine are corn, potatoes, and chili peppers. Staples brought by the Spanish include rice, wheat, and meats (beef, pork, and chicken). Many traditional foods—such as quinoa, kaniwa, some varieties of chilli peppers, and several roots and tubers have increased in popularity in recent decades, reflecting a revival of interest in native Peruvian foods and culinary techniques. Chef Gaston A curio has become well known for raising awareness of local ingredients.



Crops of Peru

Peru is considered an important centre for the genetic diversity of the world's crops:

- Maize - ("Indian" corn), 35 varieties
- Tomatoes - 15 species
- Potatoes - many varieties of potato are native to the Andes region. Over 99% of all cultivated potatoes worldwide are descendants of a subspecies, namely Solanumtuberosum. This subspecies has developed into thousands of varieties that vary by size, shape, colour, and other sensory characteristics.
- Peanuts (ground nutsgoober peas) — these are native to South America and were taken by Spanish and Portuguese merchants to Africa.
- Fruits — Peru has about 20 native fruits that are used in cooking.

The only commercially available native fruits (native to the Andes region in general—Ecuador, Chile, Bolivia) are lucuma, camucamu, prickly pear, cape gooseberry, cocona, pacay (technically a legume but used as a fruit), guanabana, dragon, pepino, papaya, ciruela, mammee apple, banana passion fruit, cherimoya, granadilla, moriche palm fruit, and

tamarillo. Yacon, although an underground tuber, is also used as a fruit. None of the other native fruits are commercially available.

Peruvian Dishes



- **Ceviche -** with many variations (pure, combination, or mixed with fish and shellfish) provides a good example of regional adaptation. Ceviche is found in almost all Peruvian restaurants, typically served with camote, or sweet potato. Tiradito is a related dish that shows the influence of Japanese immigrants and sashimi techniques. Ceviche is a South American dish of marinated raw fish or seafood, typically garnished with herbs and served as an appetizer.
- **Chupe de camarones (shrimp cioppino) -** is one of the most popular dishes of Peruvian coastal cuisine. It is made from a thick freshwater shrimp (crayfish) stock soup, potatoes, milk and chilli pepper. Regarded as typical from Arequipa, Chupe de Camarones is regularly found in Peruvian restaurants specialized in Arequipan cuisine.
- **Tamales -** boiled corn with meat or cheese and wrapped in a banana leaf. They are like humitas, which consist of corn mixed with spices, sugar, onions, filled with pork and olives and finally wrapped in the leaves of corn husks. Tamales are a common breakfast food, often served with lima and/or "Salsa Criolla."
- **Leche de tigre (tiger's milk) -** is the Peruvian colloquial name for the juice produced from the ingredients of ceviche. It has a light spicy flavour. Many Peruvians believe that ceviche is a hangover cure and an aphrodisiac. Unlike ceviche from Mexico and Ecuador, it does not have tomatoes, and unlike that of Tahiti it does not use coconut milk, though both are abundant in Peru. A variation available in Callao replaces mango for fish.
- **Polo a la Brasa (grilled chicken or roast chicken) -** is one of the most consumed foods in this country. It's basically a gutted chicken marinated in a marinade that includes various Peruvian ingredients, baked in hot ashes. The dish comes with French fried potatoes, salad and various creams (Peruvian mayonnaise, ketchup, olive sauce, chimichurri and aji (chilli) sauces of all kinds).

- **Lima butter bean (pallares) salad -** is a salad made with Lima butter beans (called pallares in Perú), cooked (but still whole) and mixed (when cooled) with a mixture of onions, slices of tomatoes, and green ají (chili), marinated in green Peruvian lime juice, oil, salt, and vinegar.
- **Empanadas (meat turnovers) -** were introduced by the Spanish during the colonial period, and later modified, possibly due to lack of Spanish ingredients (olive oil, codfish, smoked paprika, etc.). In Peru, they are filled either with chicken, beef, or cheese. Olives, and sometimes hard-boiled eggs and raisins give them a unique taste.

7. Japanese Cuisine

The traditional food of Japan is based on rice with miso soup and other dishes, each in its own serving equipment, with an emphasis on seasonal and fresh ingredients. The side dishes often consist of fish, pickled vegetables and/or vegetables cooked in broth. Fish is common in the traditional Japanese cuisine. Fish may be served raw as sashimi or in sushi or is also often grilled. Seafood and vegetables are also deep-fried in a light batter as tempura.

Staples include mainly rice or noodles, such as soba and udon. Japan has many simmered dishes such as fish products in broth called oden, or beef as sukiyaki and nikujaga. Foreign cuisine, e.g. Chinese food, also has a big influence on Japanese cuisine in the form of noodles in soup called ramen and fried dumplings, gyoza, and western food such as hamburgers and fries or pizza are commonly found in Japan. Historically, the Japanese shunned meat, but with the modernization of Japan in the 1860s, meat-based dishes such as tonkatsu became common. Japan has an indigenous form of sweets called wagashi, which include ingredients such as red bean paste, as well as its ethnic rice wine called sake. Japanese cuisine, particularly sushi, has now become popular throughout the world.

The foundations of Japanese style of cooking stem from the days when Japan produced no surplus crops because of its mountainous terrain. Food was then in short supply and was always eaten at its freshest. The Chinese had a big influence on Japan in the 6th, 7th and 8th centuries because of the Buddhist way of life, which encouraged a leaning towards fish as meat was prohibited.

TABLE 11: MAP OF JAPANESE CUISINES



Typical ingredients and recipes used in Japanese cuisine

- **Rice Vinegar (Su)** – Only rice vinegar of the highest quality should be used in sushi. It has a gentle tartness and leaves a pleasant aftertaste. When mixing the vinegar to the rice, follow the instructions exactly because if you add too much vinegar it can overwhelm the taste of the rice and fish.
- **Soy Sauce (Murasaki/Shoyu)** – It is a very essential ingredient in Japanese cuisine. It is used to mask the rawness of the fresh fish and to bring together all the flavours of the other ingredients. It is also used in the same way salt is used. Soy sauce helps to enhance and bring out the flavours of the ingredients.

- **Pickled Ginger (Gari)** – Pickled ginger is usually eaten at the end of the meal. This is done because it is considered to refresh your palate and is also high in antibacterial properties.
- **Japanese Horseradish (Wasabi)** – It is only grown in Japan. It has a nose-tingling and refreshing aroma and taste. The finer the root is ground, the better the wasabi is. Wasabi stimulates the secretion of saliva and digestive juices which in turn sharpens the appetite. Fresh wasabi is generally expensive and is usually sold in powdered or paste form.
- **Seaweed (Nori)** – Nori was first cultivated in the 17th century. It is very high in nutritional values because of its protein, mineral salt and high vitamin content. The seaweed is washed in fresh water after it is harvested and dried on large frames. It is then cut into sheets and lightly roasted. The best quality nori is black but since black can be expensive; a cheaper variety is available on the market which is green. Always store nori in an airtight container.
- **Fish** – Apart from the rice, the fish is one of the most important ingredients in sushi. It is again important to remember that the fish must always be 100% fresh. Most fish is used except white, soft flesh fish as this has bacteria that grows rapidly and can become toxic. Always cut fish for sushi against the grain.
- **Sushi Rice (Gohanmono)** – This is one of the most important ingredients and the trickiest to get right. Sushi rice grains must be aged for a while. Specialized sushi chefs, who know their rice very well, will have rice dealers and these rice dealers will mix grains of rice from different stages of maturity as well as from various regions to meet the chef's specific requirements. The rice used for sushi is called Japonica and it is classified as short grain rice. It takes a specialized sushi chef a year to perfect the rice. Sushi rice only lasts a day and should be used immediately and never kept or served later.



- **Rice –** Rice has been the staple food for the Japanese historically. Its fundamental importance is evident from the fact that the word for cooked rice gohan and meshi, also stands for a "meal". It used to be rice was consumed for almost every meal. But there has been a shift in dietary habits, so that a large segment of the population will have bread for breakfast, and have noodles (especially ramen, and even instant cup-o-noodles) for lunch. Japanese rice is short grain and becomes sticky when cooked. Most rice is sold as hakumai ("white rice"), with the outer portion of the grains (nuka) polished away. Unpolished rice (genmai) is considered less delicious by most people, but its popularity has been increasing recently because gemmai is more nutritious and healthier than hakumai.



- **Noodles** – Japanese noodles often substitute a rice-based meal. Soba (thin, grayish-brown noodles containing buckwheat flour) and udon (thick wheat noodles) are the main traditional noodles.
    - Japanese noodles, such as soba and udon, are eaten as a standalone, and usually not with a side dish, in terms of general custom. It may have toppings, but they are called gu. But the fried battered shrimp tempura sitting in a bowl of tempura-soba would be referred to as "the shrimp" or "the tempura", and not so much be referred to as a topping (gu). The identical toppings, if served as a dish to be eaten with plain white rice could be called okazu, so these terms are context sensitive.
    - Hot noodles are usually served in a bowl already steeped in their broth and are called kakesoba or kakeudon. Cold soba arrives unseasoned and heaped atop a zaru or seiro, and are picked up with a chopstick and dunk in its dip sauce. The broth is soy-dashi-mirin type of mix, the dip is similar but more concentrated (heavier on soy sauce).
    - In the simple form, yakumi (condiments and spices) such as shichimi, nori, finely chopped scallions, wasabi, etc. are added to the noodles, besides the broth/dip sauce.
    - Udon may also be eaten in kama-age style, piping hot straight out of the boiling pot, and eaten with plain soy sauce and sometimes with raw egg also.

- **Soup –** The entire category of Japanese soups in known as shirimono and it includes both clear and thick soups. Clear soups (suimono – meaning something to drink) can be served as a first course or it can be served midway through a meal to clear the palate, the same way a sorbet is used in sophisticated French cuisine. The Japanese believe that good clear is impressive in its purity and restraint and can often make or break the meal.

- **Tempura –** These are foods which are dipped in a light batter and deep-fried. The batter is made using a special tempura pre-mix or corn flour or rice flour can be used. Most often vegetables are deep-fried however it can be used in all sorts of applications.



- **Tea –** Green tea is produced in Japan and prepared in various forms such as matcha, the tea used in the Japanese Tea Ceremony. Green tea should always be enjoyed with sushi. A sip of green tea removes the aftertaste and leaves your mouth fresh for the next serving. The tea should be served as the guests sits down at the table and should be constantly refilled, until the meal is over. Green tea should still be served even if the guest is enjoying saké or any other beverage.

- **Saké & Shōchū –**

    - Saké is a rice wine that typically contains 12%~20% alcohol and is made by multiple fermentation of rice. At traditional meals, it is considered an equivalent to rice and is not simultaneously taken with other rice-based dishes. Side dishes for saké are particularly called sakana or otsumami.

    - Shōchū is a spirit most distilled from barley, sweet potato, or rice. Shōchū is produced everywhere in Japan. Its production in Japan started in a place called Kyūshū.

Types of Sushi products

- Fish products for sushi preparation:
    - Abalone/Perlemoen (Raw)
    - Octopus (Cooked)
    - Roe (Raw or Salted)
    - Squid (Raw or Cooked)
    - Sea Bass (Raw)
    - Mackerel (Marinated raw)
    - Sea Urchin (Raw or Salted)
    - Shrimp or Prawn (Cooked)
    - Crab (Cooked)
    - Salmon (Raw)
    - Tuna (Raw)



- **Aburi sushi**, (*roasted sushi*) consists of nigiri sushi with a fish topping that is partly grilled and partly raw.
- **Gunkan-maki** (*warship roll*) is a type of sushi consisting of a rice ball wrapped in a sheet of nori which extends in a cylinder upward to hold a loose topping such as fish eggs.
- **Maki sushi** (*rolled sushi*) consists of rice and other ingredients rolled together with a sheet of nori and there are four traditional types of maki and a more contemporary one:
- **Chu maki** (*medium roll*) is a medium-sized rolled maki sushi usually containing several ingredients.
- **Futomaki** (*large or fat roll*) is a thick rolled maki sushi containing multiple ingredients.
- **Hosomaki** (*thin roll*) is thinly rolled maki sushi with only one ingredient.
- **Temaki** (*hand roll*) is a cone-shaped maki sushi.
- **Uramaki** is a contemporary style of Maki sushi that is described as a roll that is *inside out*—with the rice on the outside—and has an outer layer of tobiko or sesame seeds. ***This style was developed in the United States to entice Americans to try sushi despite its unfamiliarity. Western style sushi also sometimes does not include raw meat.***
- **Nigiri sushi** (*hand-formed sushi*) consists of an oval-shaped ball of rice topped with a slice of another item

Glossary



- **Daikon -** Along, white Japanese radish
- **Ebi -** shrimp or prawn
- **Gari -** light pink, slightly sweet, pickled ginger slices
- **Gohanmono -** rice (short grain)
- **Gyoku -** rolled egg omelette
- **Itamaé San -** sushi chef
- **Kappa -** cucumber
- **Maguro -** tuna
- **Mirin -** sweet rice wine
- **Murasaki -** Japanese soy sauce
- **Nori -** seaweed sheets
- **Saké -** rice wine
- **Sake -** salmon
- **Shari -** vinegar seasoned rice used for preparing sushi
- **Su -** ricevinegar
- **Sudaré -** bamboo mat
- **Tané -** toppings
- **Tezu-** vinegar water
- **Wasabi -** Japanese green horseradish

8. Chinese Cuisine



Chinese cuisine is any of several styles originating from regions of China, some of which have become increasingly popular in other parts of the world – from Asia to the Americas, Australia, Western Europe, and Southern Africa. The history of Chinese cuisine stretches back for many centuries and produced changes from period to period and in each region according to regional climate, imperial fashions, and local preferences. Centuries ago, when the means of preserving and transporting foods were inadequate for a regional exchange of ingredients, the style of cooking was restricted to its place of origin. Therefore, each regional style developed according to its geographic conditions, climate, available ingredients, and local customs. Over time, techniques, and ingredients from the cuisines of other cultures were also integrated into the cuisine of the Chinese due both to imperial expansion and from the trade with nearby Asian nations as well as the Europeans during the modern period. This led to a variety of dishes and preparation in what could be called traditional Chinese food, leading Chinese to pride themselves on eating a wide range of foods. The four main criteria for good Chinese food are: colour, aroma, taste, and texture.

Regional Cuisines



Several different styles contribute to Chinese cuisine but perhaps the best known and most influential are Cantonese cuisine, Shandong cuisine, Jiangsu cuisine (specifically Huaiyang cuisine) and Szechuan cuisine. These styles are distinctive from one another due to factors such as available resources, climate, geography, history, cooking techniques and lifestyle. One style may favour the use of lots of garlic and shallots over lots of chilli and spices, while another may favour preparing seafood over other meats and fowl. Jiangsu cuisine favours cooking

techniques such as braising and stewing, while Sichuan cuisine employs baking, just to name a few. Hairy crab is a highly sought-after local delicacy in Shanghai, as it can be found in lakes within the region. Peking duck is another popular dish well known outside of China. Based on the raw materials and ingredients used, the method of preparation and cultural differences, a variety of foods with different flavours and textures are prepared in different regions of the country. Many traditional regional cuisines rely on basic methods of preservation such as drying, salting, pickling, and fermentation.

The North Region

Northern-style cuisine embraces the geographical areas of China that lie north of the Yangtse River. The entire northern region is relatively dry and arid, and this has severely limited the variety of ingredients available for cooking.

The most distinctive features that are native to the northern region cuisine are the hardly staples like wheat and millet.

Millet is perhaps the oldest of all foods in China, before both wheat and rice.

Steaming (zheng), baking (kao) and "explode frying" wok (bao) are the most popular cooking methods used in the region. One reason for this is the scarcity of cooking fuel and ***bao*** is by far the fastest cooking method because it requires only 30 – 90 seconds. To cook ***bao*** style, oil is heated in a wok until smoking, then all the ingredients are dropped into the oil which then creates an exploding sound and this locks in all the original flavours.

The East Region

The climate of the eastern/coastal region is the mildest in China, there is a lot of rainfall, and the soil is fertile. The region is dominated by the lower part of the Yangtze River and its intricate network of small rivers, lakes, and man-made canals. These extensive waterways provide water for irrigation and produce freshwater fish and shellfish. It also forms a large framework of transportation networks for harvested foods.

Seafood and freshwater fish form the mainstay of the eastern/coastal menu and fish recipes from this area are among the best in China. Abundant supplies of every type of vegetable are available as well. This adds a lot of colour and variety to the menu. Meat and poultry are also popular, with pork and chicken being the favourite choices.

The eastern/coastal region is one of the most diverse culinary areas of China. Fukien is famous for its rich stews, soups, and stocks as well as the ever-popular Congee. In Kiangsu, they have

developed the “red stew” to perfection using rock crystal sugar to achieve the light sweetness, shiny colour and smooth textures which characterize this type of dish. Elaborate kitchen preparations like fine and even cutting, are part of the cooking styles used in these areas.

The Central West Region

Provinces in this region are dominated by hot and humid weather. Hunan is a lush province with fertile soil, abundant rainfall and gentle topography where most ingredients for the Chinese kitchen thrive. Meat, fish and fowl play prominent roles on the Hunan menu and the entire spectrum of the vegetable kingdom is represented as well.

However, Sichuan is a province of craggy mountains, deep valleys and steep, jagged cliffs. The bulk of the province’s crops are grown in broad plains that surround the province’s capital city, Chengtu. Sichuan cuisine offers less variety of cultivated ingredients than Hunan. The mountain ranges provide a wide range of medicinal cooking herbs as well as wild game.

Red chillies from the capsicum family are the king of ingredients in this region. Due to the pharmacological effects – they tend to dry out the body and thus balance excess dampness – chillies have been extremely popular in this intensely humid region ever since their introduction from the New World. The native fragrant pepper is also extensively used, as well as garlic, ginger, and scallions. Fermented beans paste and chilli sauce feature too, giving the dishes a pungent style of their own. The lush Hunan province produces plenty of meat, fish, and fowl for its tables.

The South

Southern Chinese cooking is the best known in the Western world. The culinary capital of this region and of China is the city Canton. It boasts more restaurants and culinary creations than any other Chinese city. Both historically and geographically, the south of China has always China “rice bowl”. This is because rice thrives in the moist, warm climate and fertile conditions that this region experiences. It’s location on the coast gives access to abundant sources of fresh seafood from the South China Sea.

Among the main ingredients that commonly appear on this region’s menu are fish and crustaceans from the ocean and fish from freshwater ponds and paddies. Poultry is also commonly featured on the menu. From the vegetable kingdom comes an incredible variety

of fresh vegetables; the green, leafy varieties with crispy textures are especially favoured. Cantonese food is further renowned for its great variety of snack foods, collectively called dim sum. Dim sum is usually eaten for lunch or as a mid-afternoon snack with pots of strong fragrant tea.

The dishes include stuffed dumplings, delicate pastries, cakes, puddings and cold plates of roast meat and poultry. Chinese southern-style cuisine is generally considered to be the most highly, developed form of Chinese cooking and it is the most diverse. Their flavours are the most natural, relying almost entirely on the fresh flavour of the main ingredients.

Staple Foods of China

- **Rice –** Rice is a major staple food for people from rice farming areas in southern China. Steamed rice, usually white rice, is the most eaten. Rice is also used to produce beers, wines, and vinegars. Rice is one of the most popular foods in China and is used in many dishes.
- **Noodles –** Chinese noodles come dry or fresh in a variety of sizes, shapes and textures and are often served in soups or fried as toppings. Certain varieties of noodles, like ShouMian (noodles of longevity), is symbolic of long life and good health according to Chinese tradition. Noodles can be served hot or cold with different toppings, with broth, and occasionally dry (as is the case with mi-fun). Noodles are commonly made with rice flour or wheat flour.
- **Soybeans –** Tofu is made of soybeans and is another popular product that supplies protein. Other products such as Soymilk, Soy paste, Soy oil, and Soy sauce are also important in Chinese cooking. Soy milk is important in part because of the high prevalence of lactose intolerance amongst Asians, (around 93% intolerance).
- **Wheat –** In wheat farming areas in Northern China, people largely rely on flour-based food, such as noodles, breads, dumplings, and steamed buns.
- **Vegetables –** Some common vegetables used in Chinese cuisine include Chinese leaves, Bok choy (Chinese cabbage), Chinese Spinach (dao-mieu), On Choy, Yu Choy, Bitter melon, and gailan (guy-lahn).

- **Herbs –** Herbs were important to the Chinese people, especially during the Han Dynasty. Cilantro, parsley, onion, garlic, and basil are some of the more common herbs used in Chinese cooking.
- **Seasonings** – When it comes to sauces, China is home to soy sauce, which is made from fermented soya beans and wheat. Oyster sauce, transparent rice vinegar, chili, Chinkiang black rice vinegar, fish sauce and fermented tofu (furu) are also widely used. Several sauces are based on fermented soybeans, including Hoisin sauce, ground bean sauce and yellow bean sauce. Spices and seasonings such as fresh root ginger, garlic, scallion, white pepper, and sesame oil are widely used in many regional cuisines. Sichuan peppercorns, star anise, cinnamon, fennel, and cloves are also used. To provide extra flavours to dishes, many Chinese cuisines also contain dried Chinese mushrooms, dried baby shrimps, dried tangerine peel and dried Sichuan chillies as well.
- **Chinese Desserts –** Chinese desserts are sweet foods and dishes that are served with tea, along with meals or at the end of meals in Chinese cuisine. Bings are baked wheat flour-based confections, and include moon cake, red bean paste pancake, and sun cakes. Chinese candies and sweets, called *táng*are usually made with cane sugar, malt sugar, honey, nuts, and fruit. Gao or Guo are rice-based snacks that are typically steamed and may be made from glutinous or normal rice. Ice cream is commonly available throughout China. Another cold dessert is called *baobing*, which is shaved ice with sweet syrup. Chinese jellies are known collectively in the language as *ices*. Many jelly desserts are traditionally set with agar and are flavoured with fruits, though gelatine-based jellies are also common in contemporary desserts. Chinese dessert soups typically consist of sweet and usually hot soups and custards. Chinese desserts are frequently less sugary and milder in taste than western style desserts. Some restaurants do not serve dessert at all.



Water chestnut cake

9. Indonesian Cuisine

Indonesian cuisine is diverse, in part because Indonesia is composed of approximately 6,000 populated islands. Many regional cuisines exist, often based upon cultural and foreign influences. Indonesian cuisine varies greatly by region and has many different influences. Nonetheless, there is a character distinctively Indonesian that is reflected in its cuisine, its customs, and its culture.

Throughout its history, Indonesia has been involved in trade due to its location and natural resources. Additionally, Indonesia's indigenous techniques and ingredients were influenced by India, the Middle East, China, and finally Europe. Spanish and Portuguese traders brought New World produce even before the Dutch came to colonize most of the archipelago.

The Indonesian islands, The Moluccas (Maluku), which are famed as "the Spice Islands", also contributed to the introduction of native spices, such as cloves and nutmeg, to Indonesian and global cuisine. Some popular Indonesian dishes such as nasigoreng, gadogado, sate, and soto are ubiquitous in the country and considered as Indonesian national dishes.

Sumatran cuisine, for example, often has Middle Eastern and Indian influences, featuring curried meat and vegetables such as gulai and kari, while Javanese cuisine is more indigenous. The cuisines of Eastern Indonesia are like Polynesian and Melanesian cuisine.

Elements of Chinese cuisine can be seen in Indonesian cuisine: foods such as bakmi (noodles), bakso (meat or fish balls), and lumpia (spring rolls) have been completely assimilated.

Some popular dishes that originated in Indonesia are now common across much of Southeast Asia. Indonesian dishes such as satay, beef rendang, and sambal are also favoured in Malaysia and Singapore. Soy-based dishes, such as variations of tofu (tahu) and tempe, are also very popular. Tempe is regarded as a Javanese invention, a local adaptation of soy-based food fermentation and production. Another fermented food is oncom, similar in some ways to tempe but using a variety of bases (not only soy), created by different fungi, and particularly popular in West Java.

Indonesian meals are commonly eaten with the combination of a spoon in the right hand and fork in the left hand (to push the food onto the spoon), although in many parts of the country, such as West Java and West Sumatra, it is also common to eat with one's hands.



In restaurants or households, they commonly use bare hands to eat, like in seafood foodstalls, traditional Sundanese and Minangkabau restaurants, or East Javanese pecellele (fried catfish with sambal) and ayamgoreng (fried chicken) food stalls, they usually serve kobokan, a bowl of tap water with a slice of lime in it to give a fresh scent. This bowl of water should not be consumed, however; it is used to wash one's hand before and after eating. Eating with chopsticks is generally only found in food stalls or restaurants serving Indonesian adaptations of Chinese cuisine, such as bakmie or mieayam (chicken noodle) with pangsit (wonton), miegoreng (fried noodles), and kwetiaugoreng (fried flatrice noodles).

Foreign Influences

Indian influenced

Indian influence can be observed in Indonesia as early as 4th century. Following the spread of Islam by to Indonesia, Muslim Indian as well as Arab influences made their way into Indonesian cuisine. Examples include Indian martabak and *kari* (curry) that influenced Sumatran cuisines of Aceh, Minangkabau, and Malay; in addition to Betawi and coastal Javanese cuisine. Some of Aceh and Minangkabau dishes such as roti cane, nasi biryani, nasikebuli, and gulai kambing can trace its origin to Indian influences.

Chinese influenced

Chinese immigration to Indonesia started in the 7th century. This migration accelerated during colonial times, thus creating the fusion of Chinese cuisine with indigenous Indonesian style. Chinese-native fusion cuisine phenomena are also observable in neighbouring Malaysia and Singapore as peranakan cuisine. Some popular Indonesian dishes trace its origin to Chinese influences such as bakmi, bakso, bakpau, mi goreng, tahugoreng, siomay, lumpia, nasitim, cap cai, fuyunghai and swikee.

Dutch influenced

Through colonialism, Europeans introduced bread, cheese, barbecued steak, and pancake. Bread, butter and margarine, sandwiches filled with ham, cheese, or fruit jam, poffertjes, pannekoek and Dutch cheeses are commonly consumed by colonial Dutch and Indos during colonial era. Some of native upper class ningrat (nobles) and educated native were exposed to European cuisine; this cuisine was held in high esteem as the cuisine of the upper class of Dutch East Indies society. This led to adoption and fusion of European cuisine into Indonesian cuisine. Some dishes created during the colonial era were influenced by Dutch cuisine, including roti bakar (grilled bread), roti buaya, selat solo (solo salad), bistikjawa (Javanese beef steak), semur (from Dutch *smoor*), sayurkacangmerah (brenebon) and sop buntut. Many pastries, cakes, and cookies such as kuebolu (tart), lapis legit (spekkoek), spiku (lapis Surabaya) and kaastangel (cheese cookies) come from Dutch influence. Some recipes were invented as Dutch Indies fusion cuisine, using native ingredients but employing European pastry techniques. These include pandan cake and klappertaart (coconut tart). Kue cubit, commonly sold as snack at schools and marketplaces, are believed to be derived from poffertjes.

Typical ingredients and recipes used in Indonesian cuisine

Rice

Rice is a staple for all classes in contemporary Indonesia and it holds the central place in Indonesian culture: it shapes the landscape; is sold at markets; and is served in most meals both as a savoury and a sweet food. The importance of rice in Indonesian culture is demonstrated through the reverence of Dewi Sri, the rice goddess of ancient Java and Bali. Traditionally the agricultural cycles linked to rice cultivations were celebrated through rituals, such as *SerenTaun* rice harvest festival.

Rice is most often eaten as plain rice with just a few protein and vegetable dishes as side dishes. It is also served, however, as *nasiuduk* (rice cooked in coconut milk), *nasikuning* (rice cooked with coconut milk and turmeric), *ketupat* (rice steamed in woven packets of coconut fronds), *lontong* (rice steamed in banana leaves), *intip* or *rengginang* (rice crackers), desserts, *vermicelli*, *noodles*, *arak beras*(rice wine), and *nasigoreng* (fried rice). *Nasigoreng* is omnipresent in Indonesia and considered as national dish.

Vegetables

Several leaf vegetables are widely used in Indonesian cuisine, such as *kangkung*, spinach, *genjer*, *melinjo*, papaya and cassava leaves. These are often sautéed with garlic. Spinach and corn are used in simple clear watery vegetable soup *sayurbayambening* flavoured with *temukunci*, garlic and shallot. Other vegetables like *labu air* (calabash), *labusiam* (chayote), *kelor*, *kacangpanjang*(yardlong bean), *terung* (eggplant), *gambas* and *belustru*, are cut and used in stir fries, curries and soups like *sayurasem*, *sayurlodeh* or *laksa*. *Sayur sop* is cabbage, cauliflower, potato, carrot, with macaroni spiced with black pepper, garlic and shallot in chicken or beef broth. The similar mixed vegetables are also stir-fried as *cap cai*, a popular dish of the Chinese Indonesian cuisine.

Vegetables like *kecipir* (winged bean), tomato, *mentimun* (cucumber) and the small variety of *peria* (bitter melon) are commonly eaten raw, like in *lalab*. The large bitter melon variety is usually boiled. *Kecombrang* and papaya flower buds are a common Indonesian vegetable. *Urap* is seasoned and spiced shredded coconut meat mixed with vegetables, *asinanbetawi* are preserved vegetables. *Gado-gado* and *pecel* are a salad of boiled vegetables dressed in a peanut-based spicy sauce, while *karedok* is its raw version.

Meat and Fish

The main meat source diet mostly are poultry and fish, however meats such as beef, water buffalo, goat and mutton are commonly found in Indonesian marketplaces. The most common poultry consumed is chicken and duck, however to a lesser amount, pigeon and wild migrating sea bird are also consumed. As a country with an Islamic majority, Indonesian Muslims follows the Islamic halal dietary law which forbids the consumption of pork. However, in other parts of Indonesia where there are significant numbers of non-Muslims, boar and pork are commonly consumed. Dishes made of non-halal meats can be found in

provinces such as Bali, North Sumatra, North Sulawesi, East Nusa Tenggara, Maluku, West Papua, Papua, and in Chinatowns in major Indonesian cities. Today to cater for the larger Meat, such as beef, goat, or lamb, is cooked in rich spices and coconut milk (rendang), or skewered, seasoned, and grilled such as chicken or mutton satay, barbecued meats, or sliced and cooked in rich broth soup such as soto. Mutton and various offal can be used as ingredients for soto soup or gulai curry. In Bali, with its Hindu majority, the babiguling pig roast is popular among locasl as well as non-Muslim visitors, while the Batak people of North Sumatra have babipanggang (that is a similar dish). The meat also can be processed to be thinly sliced and dried such as dendeng (jerky) or made into abon (meat floss). *Dendengceleng* is Indonesian "dried, jerked" boar meat.

As an archipelagic nation, seafood is abundant and commonly consumed especially by Indonesians that reside in coastal areas. Popular seafood in Indonesian cuisine, among others, are mackerel, tuna, wahoo, milkfish, red snapper, anchovy, cuttlefish, shrimp, crab, and mussel. Seafood is commonly consumed across Indonesia, but it is especially popular in Maluku islands and Minahasa (North Sulawesi) cuisine. Seafood is usually being *bakar* (grilled), *rebus* (boiled) or *goreng* (fried). However, another popular method of cooking is stir-fried in spices or as part of soup. *Ikanasin* (salted fish) is preserved seafood through curing (in salt). Fresh water fisheries can be found in inland region or area with large rivers or lakes. Popular freshwater fish, among others are carp, gourami, snakehead, tilapia, catfish and pangasius.

Spices and Flavourings



"Rempah" is Indonesian word for spice, while "bumbu" is the Indonesian word for spice mixture or seasoning, and it commonly appears in the names of certain spice mixtures, sauces, and seasoning pastes. Known throughout the world as the "Spice Islands", the Indonesian islands of Maluku contributed to the introduction of its native spices to world cuisine. Spices such as *pala* (nutmeg/mace), *cengkeh* (clove), and *laos* (galangal) are native to Indonesia. It is known that *ladahitam* (blackpepper), *kunyit* (turmeric), *sereh*(lemongrass), *bawangmerah* (shallot), *kayumanis* (cinnamon), *kemiri* (candlenut), *ketumbar* (coriander), and *asamjawa* (tamarind) were introduced from India, while *jahe* (ginger), *daunbawang* (scallions) and *bawangputih*

(garlic) were introduced from China. Those spices from mainland Asia were introduced early, in ancient times, thus they became integral ingredients in Indonesian cuisine.

In ancient times, the kingdom of Sunda and the later sultanate of Banten were well known as the world's major producers of black pepper. The maritime empires of Srivijaya and Majapahit also benefited from the lucrative spice trade between the Spice Islands with China and India. Later the Dutch East India Company controlled the spice trade between Indonesia and the world. The Indonesian fondness for hot and spicy food was enriched when the Spanish introduced *cabai* chili pepper from the New World to the region in 16th century. After that hot and spicy *sambal* have become an important part of Indonesian cuisine. Sambal evolved into many variants across Indonesia, one of the most popular is *sambal terasi* (*sambal belacan*) and *sambal manggamuda* (young mango sambal). Dabu-dabu is North Sulawesi style of sambal with chopped fresh tomato, chili, and lime juice. Traditionally prepared laboriously ground upon stone mortar, today sambals are also available as industrial processed products in bottles or jars.

Soy sauce is also an important flavoring in Indonesian cuisine. *Kecapasin* (salty or common soy sauce) was adopted from Chinese cuisine, however Indonesian developed their own *kecapmanis* (sweet soy sauce) with generous addition of palm sugar into soy sauce. Sweet soy sauce is an important marinade for barbecued meat and fish, such as satay and grilled fishes. Sweet soy sauce is also an important ingredient for *semur* (Indonesian stew).

Peanut Sauce

One of the main characteristics of Indonesian cuisine is the wide application of peanuts in many Indonesian signature dishes, such as*satay*, *gado-gado*, *karedok*, *ketoprak*, and *pecel*. *Gado-gado* and *Sate* for example have been considered as Indonesian national dishes. Introduced from Mexico by Portuguese and Spanish merchants in 16th century, peanuts assumed a place within Indonesian cuisine as a key ingredient. Peanuts thrived in the tropical environment of Southeast Asia, and today they can be found, roasted, and chopped finely, in many recipes. Whole, halved, or crushed peanuts are used to garnish a variety of dishes and used in marinades and dipping sauces such as *sambal kacang* (a mixture of ground chilies and fried peanuts) for *otak-otak* or *ketan*. Peanut oil, extracted from peanuts, is one of the most used cooking oils in Indonesia.

Bumbukacang or peanut sauce represents a sophisticated, earthy seasoning rather than a sweet, gloppy sauce. It should have a delicate balance of savoury, sweet, sour, and spicy flavours, acquired from various ingredients, such as fried peanuts, *gulajawa* (coconut sugar), garlic, shallots, ginger, tamarind, lemon juice, lemongrass, salt, chilli, peppercorns, sweet soy sauce, ground together and mixed with water to form the right consistency. The secret to good peanut sauce is "not too thick and not too watery." Indonesian peanut sauce tends to be less sweet than the Thai version, which is a hybrid adaptation. *Gado-gado* is a popular dish particularly associated with*bumbukacang*, and is eaten across Indonesia.

Coconut Milk

Coconuts are abundant in tropical Indonesia, and since ancient times Indonesians developed many and various uses for this plant. The broad use of coconut milk in dishes throughout the archipelago is another common characteristic of Indonesian cuisine. It is used in recipes ranging from savoury dishes - such as *rendang*, *soto*, *sayurlodeh*, *gudeg*, and *oporayam* - to desserts - such as *es cendol* and*esdoger*. Soto is ubiquitous in Indonesia and considered as one of Indonesia's national dishes.

The use of coconut milk is not exclusive to Indonesian cuisine. It can also be found in Indian, Samoan, Thai, Malaysian, Filipino, and Brazilian cuisines. Nonetheless, the use of coconut milk is quite extensive in Indonesia, especially in Minangkabau cuisine, although in Minahasan (North Sulawesi) cuisine, coconut milk is generally absent, except in Minahasan cakes and desserts such as *klappertart*.

In Indonesian cuisine, two types of coconut milk are found, thin coconut milk and thick coconut milk. The difference depends on the water and oil content. Thin coconut milk is usually used for soups such as *sayurlodeh* and *soto*, while the thicker variety is used for*rendang* and desserts. It can be made from freshly shredded coconut meat in traditional markets or can be found processed in cartons at the supermarket.

After the milk has been extracted from the shredded coconut flesh to make coconut milk, the *ampaskelapa* (leftover coconut flesh) can still be used in *urap*, seasoned, and spiced shredded coconut meat mixed with vegetables. Leftover shredded coconut can also be cooked, sautéed, and seasoned to make*serundeng*, almost powdery sweet and spicy finely shredded coconut. Kerisik paste, added to thicken rendang, is another use of coconut flesh. To acquire

a rich taste, some households insist on using freshly shredded coconut, instead of leftover, for *urap* and *serundeng*. *Serundeng* can be mixed with meat in dishes such as *serundengdaging* (beef serundeng) or sprinkled on top of other dishes such as *soto* or *ketan* (sticky rice). An example of the
heavy use of coconut is *Buras* from Makassar, rice wrapped in banana leaf cooked with coconut milk and sprinkled with powdered coconut like *serundeng*.

Fruits

Indonesian markets abound with many types of tropical fruit. These are an important part of the Indonesian diet, either eaten freshly, or made into juices (such as *jus alpukat*), desserts (such as *esbuah* and esteler), processed in savoury and spicy dishes like rujak, fried like *pisanggoreng* (fried banana), cooked into cakes (such as *kuepisang* or *bikaambon*), sweetened and preserved such as *sale pisang*and *manisanbuah*, or processed into kripik (crispy chips) as snacks like jackfruit or banana chips.

Many of these fruits such as mangosteen, rambutan, jackfruit, durian, and banana, are indigenous to Indonesian archipelago; while others have been imported from other tropical countries, although the origin of many of these fruits might be disputed. Today, Indonesian markets are also enriched with selections of home-grown non-tropical fruits that are not native to Indonesia. Strawberry, melon, apple, and dragon fruit are introduced and grown in cooler Indonesian highlands such as Malang and Lembang near Bandung, to mimic their native subtropics habitat.

Other staples

Other staple foods in Indonesia include several starchy tubers such as yam, sweet potato, potato, taro and cassava; also, starchy fruit such as breadfruit and jackfruit and grains such as maize and wheat. A sago congee called Papeda is a staple food especially in Maluku and Papua. Sago is also often mixed with water and cooked as a simple pancake. Next to sago, people of eastern Indonesia also consume various kind of wild tubers as staple food.

Many types of tubers such as *talas* (a type of taro but larger and blander) and breadfruit are native to Indonesia, while others are introduced from elsewhere. Wheat, the base ingredient for bread and noodles were probably introduced from India or China; yam was introduced from Africa; while maize, potato, sweet potato, cassava, and maize were introduced from

Americas through Spanish influence and finally reached Java in 17th century. Cassava is usually boiled, steamed, fried, or processed as popular snack *kripiksingkong* (cassava crackers). Dried cassava, locally known as *tiwul*, is an alternate staple food in arid areas of Java such as Gunung Kidul and Wonogiri, while other roots and tubers are eaten especially in hard times. Maize is eaten in drier regions such as Madura and islands east of the Wallace Line, such as the Lesser Sunda Islands.

International culinary styles

Classical Haute Cuisine

A French classic cuisine that dates to its origins in the 16th century and was most prosperous during the luxurious banquets of the 19th century is called grand cuisine, or haute cuisine. Richness, suavity, balance, and an elegant presentation are hallmarks of this classic cuisine. In contrast to other cuisines, where bold, earthy tastes and textures are acceptable, Grande cuisine aims for a sophisticated balance and an appearance of artfulness.

Nouvelle Cuisine

This style of international cuisine originated in France during the 1960s and 1970s and emphasized freshness, lightness, and clarity of flavour. It inspired new trends in world cuisine. In response to some of the richer and more calorie-dense extravagances of classic French Grande cuisine, nouvelle cuisine sought to emphasize the natural flavours, textures, and colours of foods. In response, it minimized the use of fats, sugars, refined starches, and salt. A Japanese influence also affected nouvelle cuisine.

Fusion Cuisine

Fusion cooking involves combining cuisines from various traditions, techniques, regions, cultures, or disciplines to produce a distinct and new dish. The motives for combining these traditions, techniques, or disciplines are numerous. It is a technique that chefs can use to expand their culinary repertoire and to offer a dish that is truly unique and distinct from those offered by their peers and competitors. Chefs or cooks from numerous cultural backgrounds may use fusion cooking to add their own distinctive identity to a meal.

Pacific Rim Cuisine

Food is prepared and served in a way that combines ingredients and techniques from Asian and West Coast cuisines. It combines recipes from warmer climates, such as Singapore, Malaysia, Thailand, Vietnam, Indonesia, and Japan. South-East Asian cuisine is known for its bold and vibrant flavours, which result in a wide range of meals that are simple to prepare and rich in flavour. This type of food typically addresses all the major taste components of the palate-sweet (sugar, fruits, fruits), hot (chillies), sour (vinegar, lime juice, tamarind) and salty (soy sauce, fish sauces). As well as providing taste stimulation, the dishes use a variety of

aromas and smells that combine and recombine, creating a lusty taste that is combined with basil, coriander, lime leaves, garlic, lemongrass, ginger, cumin, turmeric, and coconut.

Molecular Gastronomy

Molecular Gastronomy is the study of the natural chemical changes that occur during cooking using scientific methods that are often used by chefs and scientists to reconstruct dishes into shapes not normally recognized. Chefs are using scientific principles to develop new approaches to cooking, food preparation, and presentation.

Basic Scientific Principles Within the Cooking Environment

Understanding behind pH

"PH" stands for "potential of hydrogen." It is a measure of the acidity or alkalinity of a chemical and is best measured with a pH meter. Food and chemical industries rely on it heavily as an indicator of many factors, from processing and shelf life to quality. **A pH value of 0.0 indicates extremely acidic solutions, while 14.0 indicates extremely alkaline solutions.**

Reasons for controlling pH is crucial in cooking and baking:

- It is a method for preventing spoilage caused by mould or other food-borne pathogens. Food safety issues include controlling the growth and death of microorganisms, the spread of bacteria, and the inactivation of bacterial spores during the processing of food for storage or wholesale.
- Ensures optimal qualities of products. for example, in baking it ensures ideal rising properties in yeast- and chemically leavened products and affects the texture and behaviour of gluten in baked goods.
- Sensory perception and consumer acceptance of food are greatly influenced by colour and texture. The pH affects pigments (e.g., chlorophyll, carotenoids, anthocyanins, etc.) that determine the colour of fruits, vegetables, and meat.
- When the pH is below the typical pH, muscle foods hold water better and are more tender.
- Food processing is affected by the pH value in many ways. Among these are protein properties such as denaturization, gelification, enzyme activity, and chemical reactions, such as the Maillard reaction.

- Thus, understanding pH effects and controlling them during processing is necessary to produce products that are safe, high-quality, and valuable.

Acidity and pH

Acidity is measured in foods by gauging their pH values. pH scale ranges from 0 to 14, **with 7 being neutral.** pH values below pH 7 are considered acidic, while that above pH 7 are considered basic. Therefore, the lower the pH, the more acidic the food.

To preserve foods with acidity, the pH must be 4.6 or lower. By doing so, the toxins created by the deadly organism that causes, for example, botulism are inhibited. When the pH of a food is greater than 4.6, we refer to it as low-acid food. Low-acid foods (pH between 4.6 and 6.9) have high pH values.

Composition of acidified foods

The stability of acidic foods is determined by one or more food acids, such as citric acid, malic acid, or acetic acid. In most acidified foods, including dressings and sauces, vinegar (acetic acid) is used to produce the desired acidity. It is an efficient and familiar source of food acid. When low-acid foods are used in formulations, they must be properly acidified to prevent spoilage. The pH must be brought to a satisfactory level within a reasonable period. Factors such as food piece size or wax peel can increase or decrease the uptake of acid by low acid foods. By reducing the piece size of the low acid food, these problems can often be overcome. If oil is used in the formulation, the low acid components should reach an equilibrium pH below 4.6 before the oil is added.

Many foods possess a chemical property called buffering capacity that allows them to resist pH changes. At certain pH levels, food must be treated with progressively greater amounts of acids to continue to reduce pH. The "buffering properties" can also be useful for preventing pH changes caused by minor variations in acid additions.

Buffering Capacity:

Acid neutralizing capacity or alkalinity is the ability of a medium (like soil or water) to resist rapid changes in pH.

Determining pH values



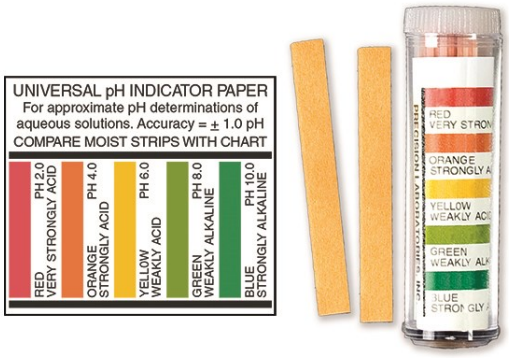
Electronically/digitally:

The pH level of food is usually measured using a pH meter. One method to measure pH is electronically by inserting electrodes from the meter into the solution. Several pH meters are available from scientific equipment suppliers. Prices vary according to the meter's features and type.

Colourimetrically:

You can also estimate pH colourimetrically by using pH test papers.

With the aid of a colour reagent, a chemical element or chemical compound's concentration can be determined.



pH measurement of food

Acid foods should be liquid or pureed in a blender to measure their pH. Some distilled water may be added to the mixture to mix the components completely. A sample that represents the whole should be tested. It may be necessary to decant the oil layer to measure the non-oil phase. To determine the equilibrium pH of low acid food, separate the low acid food from the acidifying portion and prepare and measure each sample separately.

Controlling spoilage

By acidifying to a pH of 4.6 or below, the bacteria that cause botulism are prevented from growing and forming toxins. Acidification cannot replace proper sanitation and care in manufacturing. Therefore, the manufacturer must maintain the highest standards of cleanliness and protection of the product. The standards are covered by food safety regulations, commonly referred to as good manufacturing practices. Despite proper sanitation and acidification, a food product may still be spoiled by yeasts and moulds. For this reason, acid or acidified food is usually heated to min. 82°C and packaged hot to kill yeast spores.

pH scale

pH - Acidity or alkalinity of a solution. The pH of 7 is considered neutral. Acids have a pH lower than 7; the farther they are from 7, the stronger they are. A base is an alkaline solution with a pH higher than 7; the higher the pH, the stronger it is.

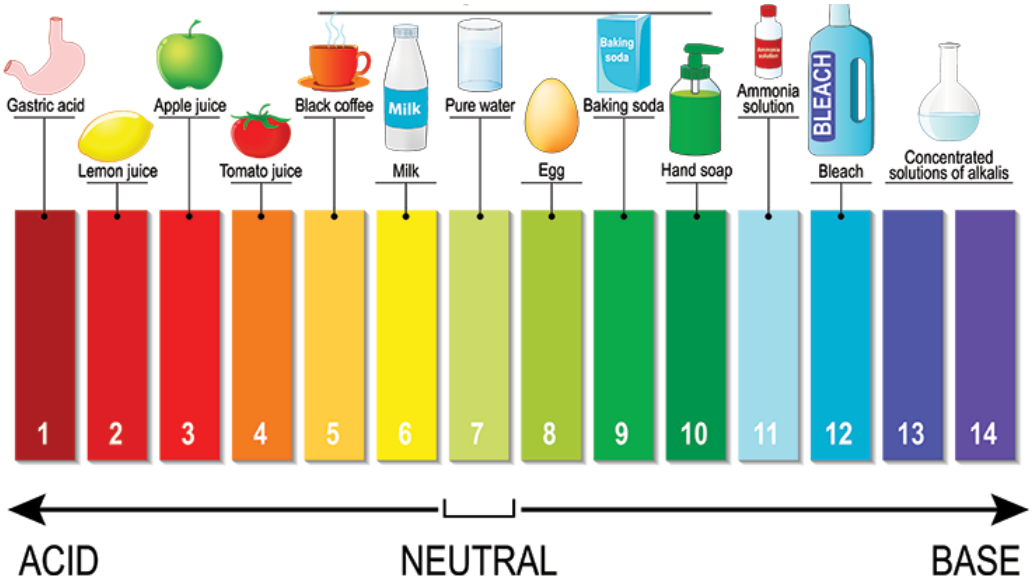


TABLE 12: ASSOCIATING TYPICAL PH VALUES OF COMMON FOODS

Product	pH value	Product	pH value
Baker's yeast bread	5.3 – 5.8	Sourdough bread	3.8 – 4.6
Biscuits	7.0 – 7.2	Eggs	6.6
Cow's milk	6.4 – 6.8	Vinegar	2.5
Lemon juice	2.6	Canned tomatoes	4.0
Mayonnaise	3.7	Canned peaches	3.9

The breakdown of pH scales

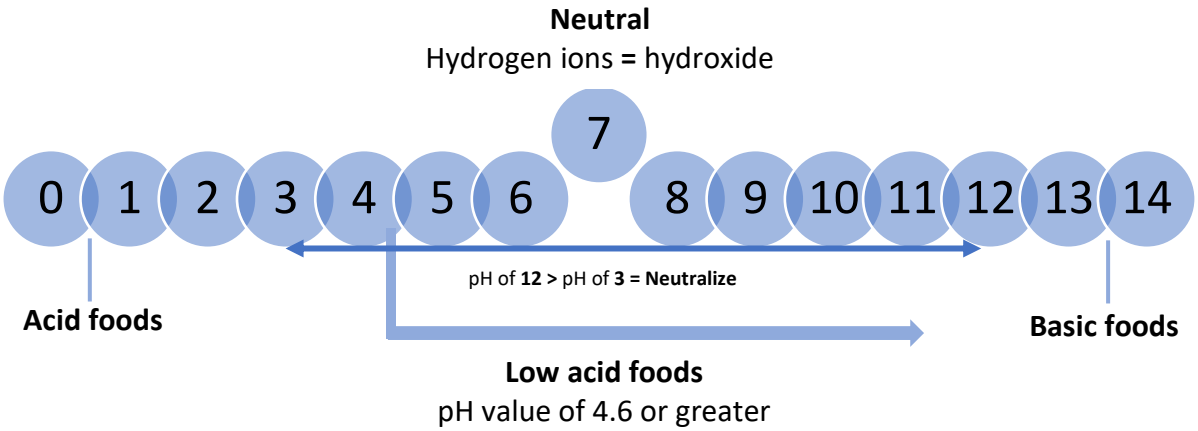
pH scales are logarithmic. This means that the amount of hydrogen ions increases tenfold (by a factor of 10) with every step down the scale. Therefore, when a liquid is pH 4, there are 10 times as many hydrogen ions as when it is pH 5. On the other hand, every step up the scale reduces hydrogen ions (and increases hydroxide ions) by a factor of 10.

Acids are compounds that add positively charged hydrogen ions (H^+) to liquids. Hydroxides (OH^-) are negatively charged ions added by bases.

Nearly 0 pH results in excessive H^+ ions, which make the solution very acidic. Using lemon juice as an example, its pH is about two. When pH is closer to 14, there are many free OH^- ions. Bleach belongs to the basic group of solutions. A pH around 7 is neutral. In pure water, hydrogen and hydroxide ions are in equal amounts, making the pH perfectly balanced. That's why water has a pH of 7.

FIGURE 18: DETERMINING STRENGTH TO NEUTRALIZE PH

Each specific unit has its opposite on the pH scale. To neutralize, you must have the same amount and strength of the opposite unit. For example, pH of **1 >** pH of **14** and pH of **12 >** pH of **3.**

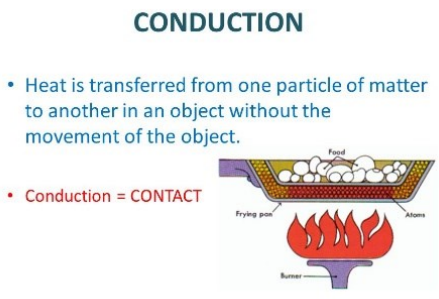


Methods of heat transfer

Heat transfer refers to the movement of heat from a hot surface to a cooler surface. Heat is transferred in three ways: conduction, convection, and radiation. These techniques are usually combined in the cooking process.

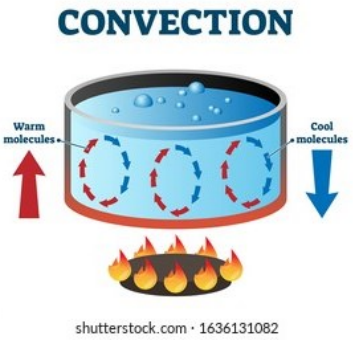
Conduction

During conduction, heat is transferred through direct contact; food is heated directly in a pan, in liquid or surrounded by hot air. A good example is placing an egg in a pot of boiling water. Heat is transferred from the water to the egg. As the outside of the egg becomes warmer, the heat moves towards the centre, continuing inward until the entire egg reaches the desired temperature. Heat transfer efficiency is determined by the conductivity of materials in contact with food. Among the best heat conductors is copper. Cookware made of copper transfers heat quickly



from the heat source into the food. In contrast, water, stainless steel, and food themselves do not conduct heat well.

Convection

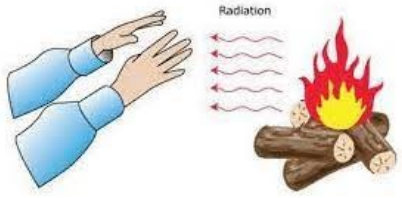


Transfers heat more rapidly than conduction. During convection, air, liquid, or steam circulates around the food. For example, when heating soup on the stove, heat moves from the bottom of the pan to the top. As a result, hot and cool liquids or gases combine. Heat is spread throughout the ingredients when stirred. If frozen foods are placed under cold running water, they will thaw more quickly due to convection. It is also possible to achieve convection mechanically in an oven by running a fan that circulates the air. Convection ovens can reduce cooking time by 25 percent compared to conventional ovens. In addition, this increases the browning of food when the surface is exposed to concentrated heat.

Radiation

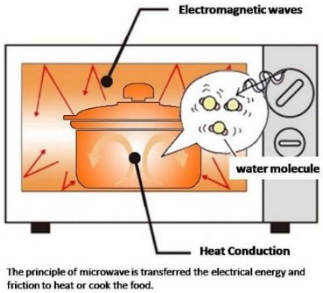
The transfer of heat via radiation occurs when microwaves (light waves) or infrared waves (heat waves) are spread into the food.

Infrared radiation



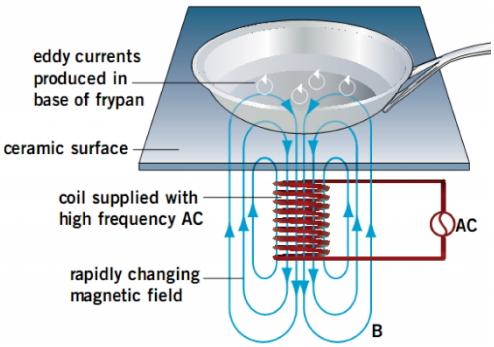
Infrared radiation results from infrared light that is emitted naturally by burning wood or glowing charcoal from for example a grill. Or, by using the heating element of a broiler, toaster, or infrared oven, which both heats your cookware and food.

Microwave radiation



Microwaves penetrate food molecules, causing them to vibrate rapidly as they bump into molecules of water and fat. As a result of this vibration, the food is heated by friction. In general, microwaves penetrate unevenly through larger pieces of food, which limits their use.

Induction



An induction cooktop transmits heat contactless to pans and pots. An induction range does not use flame burners or heating elements. They use alternating electrical current (AC) instead, which is run through copper coils under each cooking zone, creating an alternating magnetic field above the zone. Pans and pots that contain iron pick up that magnetic field and get charged with loops of electrical current. The current causes the electrons inside the cooking vessel to vibrate so intensely that the friction from their movement instantly heats it up.

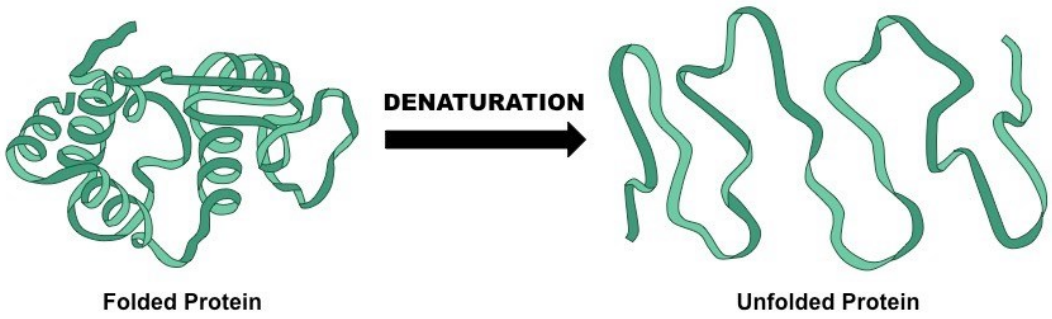
Effects of heat

Food is changed by heat in terms of colour, texture, flavour, shape, and nutritional value., and nutritional value. Protein, carbohydrates (sugars and starches), fats, and water are affected by heat in different ways. Cooking methods should be carefully chosen based on the contents of the food and the desired outcome.

Denaturing

Denaturation refers to the change in a protein caused by abnormal conditions. Proteins can be denatured by heat, acid, high salt concentrations, alcohol, and mechanical agitation. Proteins lose their complicated folded structure when they denature, resulting in a long stream of amino acids. Denatured proteins no longer function since they depend on the shape to function. The heat applied to the food causes proteins to vibrate. This destroys the weak bonds that hold protein complexes together (though not the stronger bonds). Once unravelled, the protein strands stick together forming an aggregate (or network).

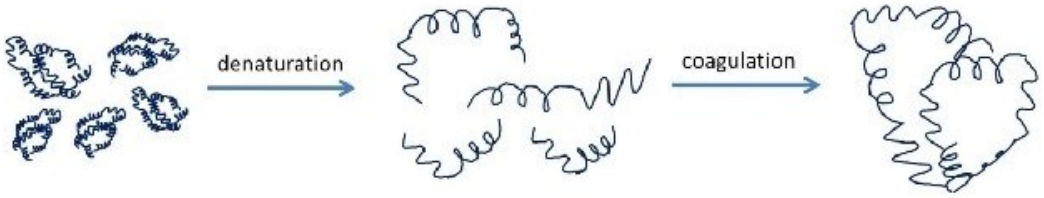
FIGURE 19: DENATURING



Coagulation

Heat or a change in pH can cause proteins to denature or coagulate. Proteins go from semisolid to solid during cooking. For instance, cooking egg whites. This happens between 70°C and 85°C. Heat entangles the unfolded protein chains and causes them to gather. Similar coagulation occurs when lemon juice or vinegar is added to milk. A change in pH causes casein (milk protein) to denature and coagulate.

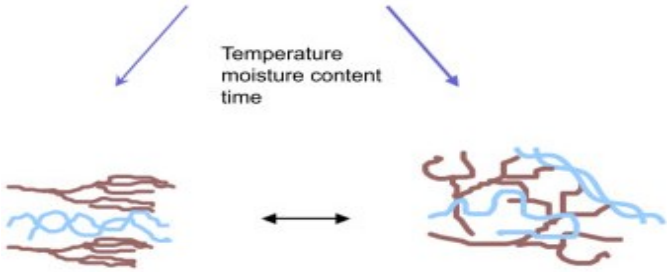
FIGURE 20: COAGULATION



Syneresis

The syneresis process is what a protein goes through after the coagulation stage if the agents that cause the protein to coagulate (such as heat, salt, or acidity) continue to exert their respective effects. Proteins can bind even more tightly together, expelling moisture, and hardening as a result. This is an irreversible process. For example, when heat is applied to meat for extended periods, it will result in meat proteins losing moisture and becoming tough.

FIGURE 21: SYNERESIS



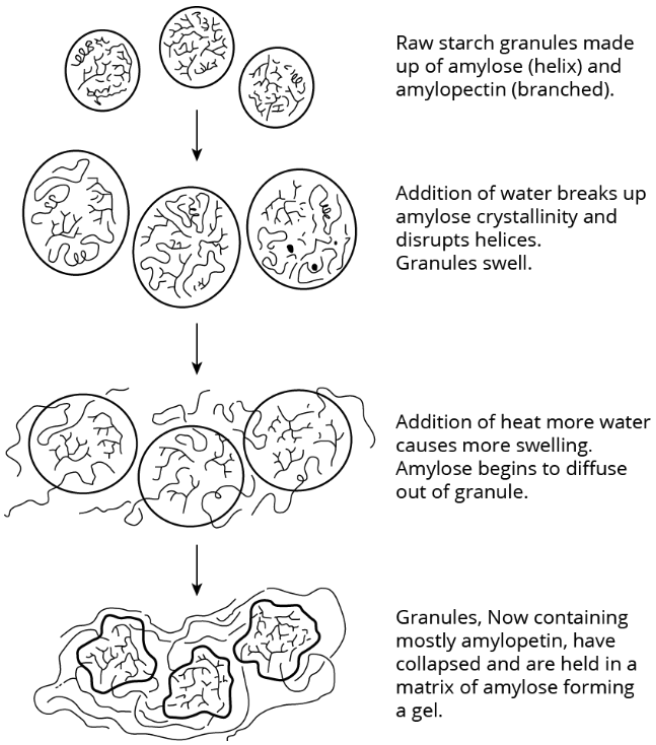
Starch gelatinisation

Starch gelatinization occurs when starch and water are heated, causing the starch granules to swell. Gelatinization of starch occurs at a range of temperatures depending on the type of starch and the availability of water. Water is absorbed in an irreversible manner during this process. The system becomes viscous and transparent as a result. The reaction produces a gel that can be used in sauces, puddings, creams, and other food products to give the product a pleasing texture.

Liquids thicken because of gelatinization. Starch granules expand and burst when heated, releasing starch into the surrounding liquid. The swelling usually occurs between 85°C and 90°C. An excessive or prolonged heat source, inadequate dispersion of dry starch in melted fats or cold water, and excessive agitation may interfere with the gelatinization process.

A change in texture also occurs during the preparation of some products, for example, pasta is primarily made of semolina wheat (wheat flour), which contains high levels of starch. Because of absorbing moisture when it is cooked in boiling water, the size increases, and the texture of the pasta softens.

FIGURE 22: STARCH GELATINISATION

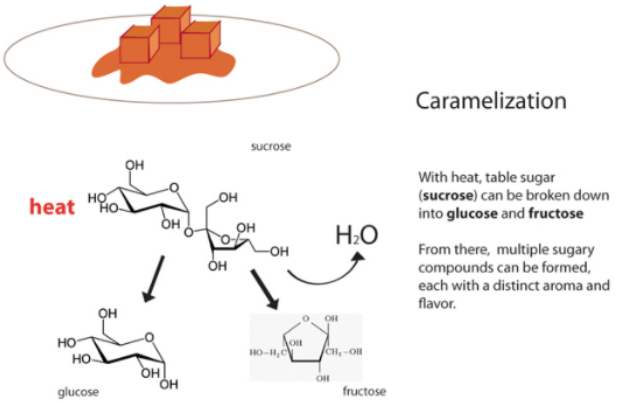


Enzymatic and non-enzymatic browning

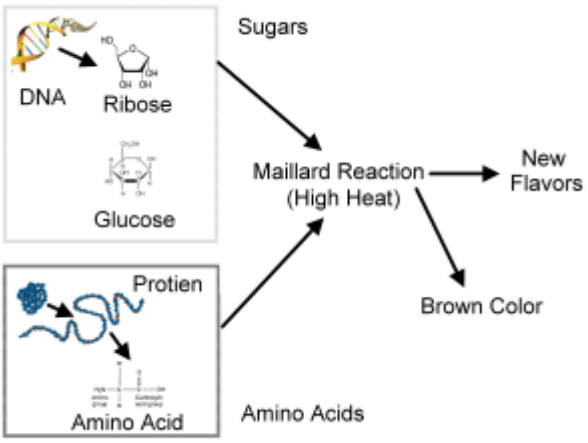
Browning of foods can be either non-enzymatic (caramelization or Maillard reaction) or enzymatic.

Non-enzymatic browning

Caramelization - occurs when carbohydrates and sugars in foods are heated. It involves the removal of water from a sugar at high temperatures (165°C) resulting in a brown colour due to a chemical reaction that is not activated by an enzyme. This happens to natural sugars in foods as well as added sugars. Excessive caramelization may produce an unappealing burnt flavour or dark colour.



The Maillard reaction - a chemical reaction between an amino acid and a reducing sugar, which usually requires heating. This form of browning is non-enzymatic like caramelization. Odour and flavour molecules result from the interaction between the reactive group of the sugar and the amino acid. The process accelerates in an alkaline environment because the amino groups do not neutralize. Since the type of amino acid determines the flavour, this reaction forms the foundation of taste. Hundreds of different flavour compounds are formed during this process. In turn, these compounds break down to form new flavour compounds, and so on. The Maillard reaction forms a unique set of flavour compounds in each type of food. These same compounds have been used for decades to create artificial flavours.



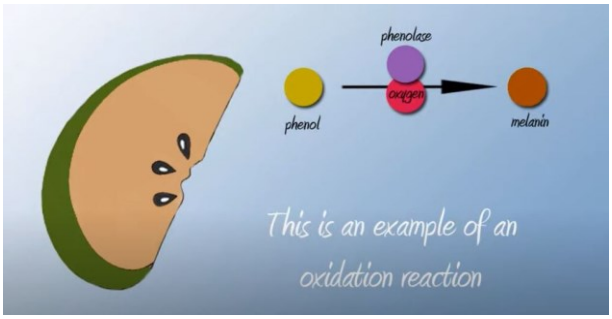
Fat Peroxidation/Rancidity – because of exposure to heat, light, or oxygen over time, fat can become rancid. As a result, it breaks down into smaller pieces called fatty acids. As a result, rancidity is created, along with unpleasant smells, colour changes, and oxidation. Peroxidation is a chemical reaction between predominantly unsaturated fatty acids and reactive forms of oxygen.

Enzymatic browning

Enzymatic browning is a reaction which requires the action of enzymes and oxidation to occur. Browning is a natural process that occurs in many fruits and vegetables. When fruits and vegetables are bruised, cut, peeled, or exposed to any abnormal condition, they darken quickly on exposure to air as a result of the formation of brown melanin from oxidation, resulting in the browning of the food.

How enzymatic browning occurs.

Many different molecules make up food, including those called enzymes. Protein enzymes speed up chemical reactions by acting as biological catalysts. Fruit can overripen and turn brown because of them.



A reaction between oxygen in the air and sliced fruit can cause the fruit to turn brown, which is called enzymic browning (oxidation). A reaction occurs when oxygen in the air reacts with the phenols and phenolase found in the apple cells, for example, when the apple is cut. The phenolase converts the phenols into melanin, which has a brown colour. The phenolase enzymes need to be denatured to stop the oxidative reaction. Acids and heat can be used to accomplish this.

In fresh fruit and vegetables, enzymes are normally trapped in their tissues. However, when the fruit or vegetable is sliced, squashed, or starts to decompose, the enzymes come into contact with air.

Colloids and Emulsions

The colloid system is a type of mixture in which one part is constantly dispersed throughout another. A colloidal system is formed when one part is dispersed through another but does not combine to form a solution. Thus, there are many types of colloidal systems depending on how the two parts are mixed. A colloidal system consists of two phases: a dispersed phase (or internal phase) and a continuous phase (or dispersion medium). The part which is dispersed is known as the dispersed phase, which is suspended in the continuous phase.

Based on how the particles in the two phases differ, colloidal food systems can be classified into several groups. Colloids in food are sols, gels, emulsions, and foams. Egg white foam, for example, is a colloidal system. A foam is created when air bubbles (disperse phase) are trapped in the egg white (continuous phase). Food colloids provide structure, texture, and mouthfeel to a variety of food products, for example, jam, ice cream, mayonnaise, etc. The food colloid contains hydrocolloid that emulsifies, thickens, gels, and stabilizes the products.

In general, colloids are stable, but they can separate over time due to an increase in temperature or physical force. Additionally, they may become unstable after freezing or heating, especially if they contain an emulsion of fat and water.

FIGURE 23: COLLOIDAL SYSTEMS

System	Disperse phase	Continuous phase	Product
Sol	Solid	Liquid	Uncooked custard, unset jelly
Gel	Liquid	Solid	Jelly, Jam
Emulsion	Liquid	Liquid	Mayonnaise, Milk
Solid Emulsion	Liquid	Solid	Butter, Margarine
Foam	Gas	Liquid	Whipped cream, Whisked egg white
Solid Foam	Gas	Solid	Meringue, Bread Cake, Ice Cream

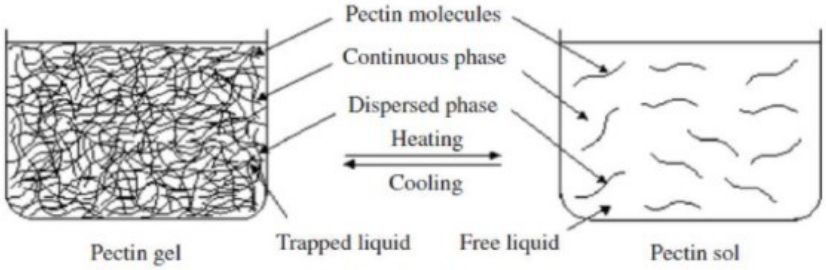
Sols and gels

Sols are colloidal dispersion in which solid is the dispersed phase, while liquid is the continuous phase. Some examples of these are stirred custards and thick sauces.

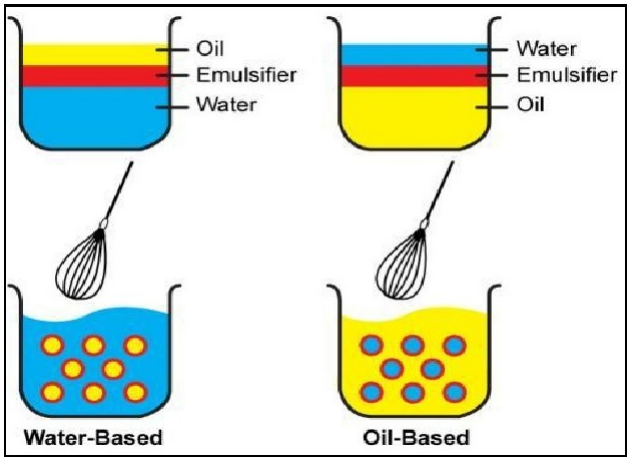
Jelly is made by scattering gelatine into a liquid and heating it to form a sol. During cooking, protein molecules unwind, forming a network that traps water and forms a gel.

Corn flour mixed with water and heated causes the starch granules to absorb water until they rapture. After that, the starch granules disperse in the water and the mixture becomes more viscous and sets into a gel after cooling. Gels can also be formed with pectin and agar. Fruit

pectin is used in the production of jam for helping it set. The polysaccharide agar is obtained from seaweed and can be formed into gels. When a gel is left to stand for a long time, it begins to "weep." This loss of liquid is known as syneresis. The correct ratio of ingredients is crucial to achieving the correct viscosity of the sols at a certain temperature. When the temperature is lowered, sols can become gels.



Emulsions



Emulsions are colloidal solutions in which both the dispersed phase and the dispersion medium are liquids. Numerous natural and processed foods involve either relatively or entirely as emulsions or have been in an emulsified form at some time through their fabrication containing milk, cream, butter, margarine, fruit beverages, soups, batters, mayonnaise, cream liqueurs, sauces, desserts, salad cream, ice cream, and coffee whitener.

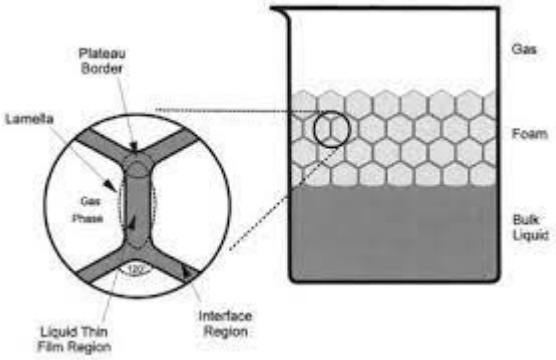
The processing of an emulsion-based food product with specific quality features is influenced by the selection of suitable raw materials (e.g., water, oil, emulsifiers, thickeners, minerals, acids, bases, vitamins, flavours, colorants, etc.) and processing situations (e.g., mixing, homogenization, pasteurization, sterilization, etc.).

Emulsions are composed of two immiscible phases (usually oil or water), with one liquid dispersed as fine spheres in the other. Oil-in-water emulsions (e.g., mayonnaise, milk, cream, soups, and sauces) contain oil droplets dispersed in the aqueous phase. A water-in-oil emulsion (e.g., margarine, butter, and spreads) is a mixture of water droplets and oil.

Emulsions are thermodynamically unstable and therefore tend to breakdown over time due to various physicochemical mechanisms. Therefore, stabilizers are used in emulsion formulations to improve their long-term stability, such as emulsifiers, texture modifiers, ripening inhibitors, and weighting agents. The most used polysaccharide emulsifiers in food applications are Arabic gum, modified starches, modified cellulose, pectin, and some galactomannans. The purpose of an emulsifier is to adsorb at the surface of freshly formed fine droplets and prevent them from coalescing with nearby droplets to form larger droplets again. An example of a stable emulsion of oil and vinegar is mayonnaise, in which egg yolk (lecithin) is used as an emulsifying agent.

Foams

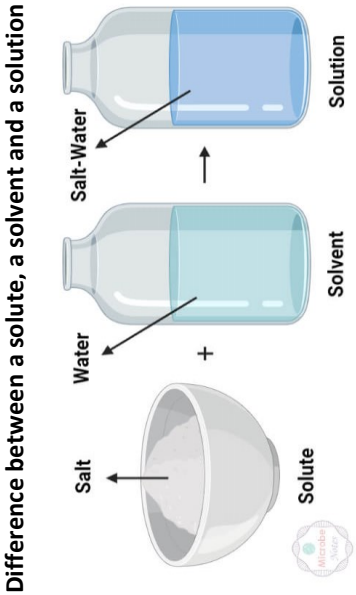
Foam is made up of small bubbles of gas (often air) suspended in a liquid, for example, egg white foam. When liquid egg white is whipped, air bubbles are included. As a result of the mechanical action, albumen proteins unfold and form a network that entraps air.



Heating egg whites causes protein to coagulate and moisture to evaporate. As a result, a solid foam is created, such as a meringue. Other solid foams include ice cream, bread, and cake.

FIGURE 24: COLLOID REFERENCE TABLE





Concept of flavour dynamics and development

Flavour profiles

Spices, seasonings, and aromatics that emulate a specific cuisine make up a flavour profile. These flavours and textures are easily recognizable. By identifying foods or dishes from your past experiences, you will be able to closely replicate them based on knowledge of the basic ingredients and find balances between the flavours and textures of these ingredients.

The gustatory system or sense of taste is one of the sensory systems responsible for the perception of taste and flavour. The sensation of taste is the result of a chemical reaction occurring between a substance in the mouth and the taste receptor cells in the oral cavity, including the tongue. Taste, in addition to sensory stimulation (texture, pain, and temperature), determines the flavour of food. Taste buds are sensory organs on the tongue that allow you to sense flavours. Our taste buds perceive five universally accepted basic tastes: sweet, salty, sour, bitter, and umami.

While taste is the sensation experienced by the tongue. Aroma refers to a sense of smell, which is perceived through the nose or retro nasal olfaction (a receptor that detects odours coming from the oral cavity during eating and drinking), i.e., through the back of the mouth where the nasal and mouth cavities are linked. The term flavour refers to the combination of both aroma and taste.

There is a close relationship between aroma and taste within the brain and both influence emotion. A particular role played by aroma is to evoke memories and thoughts based on previous experiences. During the preparation of food or when consuming it, the sense of smell is one of the first ones that is experienced. However, due to its composition of volatile compounds that easily evaporate at room temperature, the aroma is also one of the most variable components of our sensory experience. Olfactory fatigue (inability to distinguish flavours after prolonged exposure) affects flavour profiles in particular.

FIGURE 25: EXAMPLES OF AROMATICS AND TASTES TO MAKE FLAVOUR PROFILES

Cuisine	Examples of Spices	Examples of Ingredients
Asian inspired	Ground garlic Coriander Ground ginger Star anise	Soy sauce Rice vinegar Sesame oil Agave (I use this when making a stir fry sauce) Sriracha (or any type of chili sauce), etc.
Thai inspired	Garlic powder Coriander Turmeric Lemongrass cardamom Basil	Coconut milk Fish sauce Limes Peanuts Noodles Chilis Peanut, etc.
Indian inspired	Garam masala Turmeric Cinnamon Cumin and Nutmeg Curry powder Ground ginger Garlic powder	Fresh ginger Fresh garlic Tomatoes Cilantro Chilis Onions Curry paste, etc.

FIGURE 26:FACTORS CONTRIBUTING TO FLAVOUR EXPERIENCES OF FOOD:

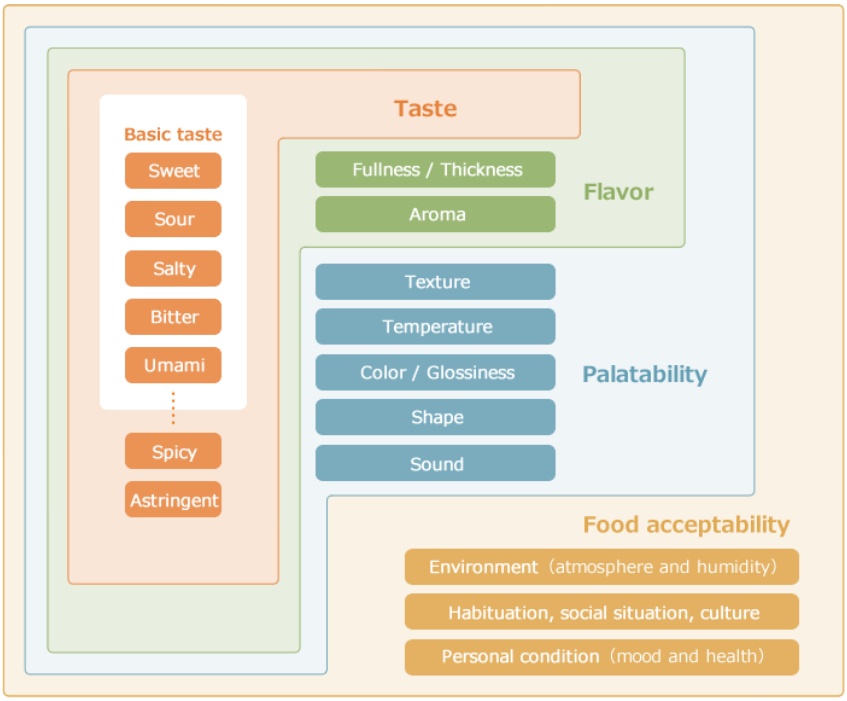


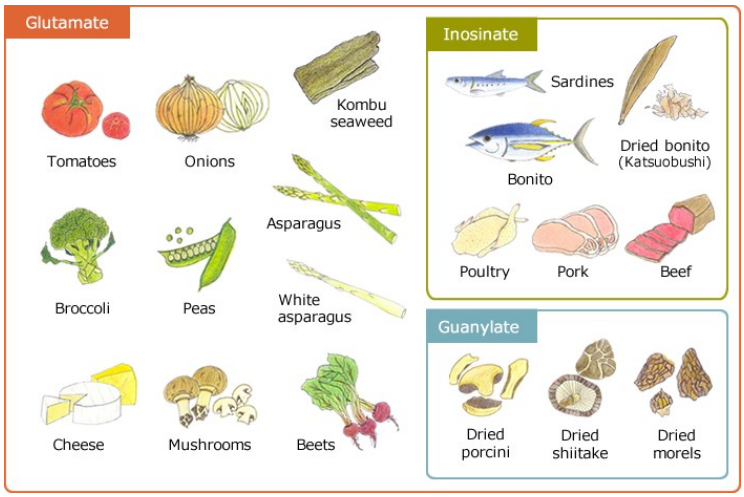
FIGURE 27:TASTE RECEPTORS AND FOOD SOURCES:

Taste	Taste substance	Common foods
Sweet	Sucrose Fructose Glucose	Sugar, Honey, Candy
Sour	Acetic acid Citric acid Lactic acid	Vinegar, Lemons, Limes, Yogurt
Salty	Sodium chloride	Salt
Bitter	Caffeine Alkaloids Momordicin	Coffee, Bitter melon, Chocolate (90% cacao mass)
Umami	Glutamate Inosinate Guanylate	Tomatoes, Cheese, Meat, Fish, Dried shiitake mushrooms

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Taste Receptors and Flavour

- **Umami**



One of the core tastes is umami. A taste of umami is often described as a meaty, savoury element that enhances the flavour. This is imparted by glutamate, an amino acid that is a building block of protein. There are many foods that contain glutamate, and it plays a significant role in determining the taste, palatability, and acceptability of foods. Umami provides a signal to the body that protein has been consumed. In response to umami, saliva and digestive juices are secreted, which facilitates protein digestion. Umami is primarily composed of glutamate, inosinate, and guanylate.

Many foods contain glutamate, including meat, fish, and vegetables (or foods that have been enhanced with monosodium glutamate). Animal-based foods such as meat and fish contain high levels of inosinate, while dried mushroom products such as dried shiitake contain high levels of guanylate.

- **Sweetness**

Sweetness in food or substances that resemble sweetness is a marker of sugar content. As sugar and carbohydrates replenish our body's energy stores, they provide the body with energy. Sweet taste receptors are important for nutrient sensing, monitoring changes in energy stores, and triggering metabolic and behavioural responses to maintain energy balance.

- **Sourness**

The taste of sourness indicates the presence of acidity. Sour tastes aid us in detecting acids in our food, and like salt, small amounts of it are pleasurable, larger quantities are not. Therefore, sour tastes help us evaluate the quality of food. If fruit is not yet mature, it contains

citric and other acids, and therefore tastes too sour—so we avoid eating it. Similarly, milk's lactic acid concentration increases as it ages and becomes inedible.

- **Saltiness**

The taste of saltiness is primarily the result of the presence of sodium/sodium chloride (salt). Sodium is essential to the body's health because it regulates ion and water homeostasis. The taste marker for sodium is, of course, "salty". Due to the importance of sodium in the body, it is normal to crave sodium in small amounts, but not large quantities. Eating too much salt at once is dangerous, so our body responds by rejecting extremely salty solutions.

- **Bitterness**

Bitterness is one of the most sensitive tastes, and many find it unpleasant, sharp, or disagreeable. Bitter flavours indicate toxins (poisons), and we instinctively reject them to avoid harm. However, there are bitter compounds that have a desirable effect on the body, such as caffeine and other plant substances (i.e., cocoa), and can be tolerated in small or controlled quantities.

Enhancing and balancing taste in flavour

To balance another flavour means to counteract or offset it to achieve a more agreeable taste. Spice and sweet, for example, complement each other. There are several ways to use these different tastes to create a distinct flavour or improve another taste. For instance, spice balances sweetness, and sweetness balances spice. A pinch of cayenne pepper can be added to hot chocolate for a more dynamic flavour or spiciness can be balanced with sweetness.

Effects of sweet additions in dishes:

- Balances sourness, bitterness, and spice.
- Enhances saltiness.

Effects of salty and savoury additions in dishes:

- Balances bitterness.
- Enhances sweetness.

Effects of bitter additions in dishes:

- Balances sweetness and saltiness.

Effects of sour additions in dishes:

- Balances sweetness, bitterness, and spice.
- Enhances saltiness.

Effects of spicy additions in dishes:

- Balances sweetness.

Other factors that influence flavour perceptions

- ***Visual factors***

Despite being technically separate from taste, sight still influences perception. The sense of smell and sight, rather than taste, is predominant when distinguishing foods and drinks. Many of our perceptions are influenced by our expectations based on learned associations. The way a meal is presented can affect how we perceive it, but the way sight influences our perception of food and beverages is a lot more complicated. Both our expectation and our sensory experience of the food is influenced by the food presentation.

Even though most people believe that they are not easily deceived, taste is often fooled by sight. We have certain expectations when it comes to how food should look. When a food's colour is off or different from what we expect, our brain tells us it tastes different too.

To interpret tastes, taste buds send messages to the brain. Since we look at our food before eating, our eyes send signals to our brain before our taste buds even get the chance to register them. As a result, we perceive the taste and flavour of what we're about to eat differently.

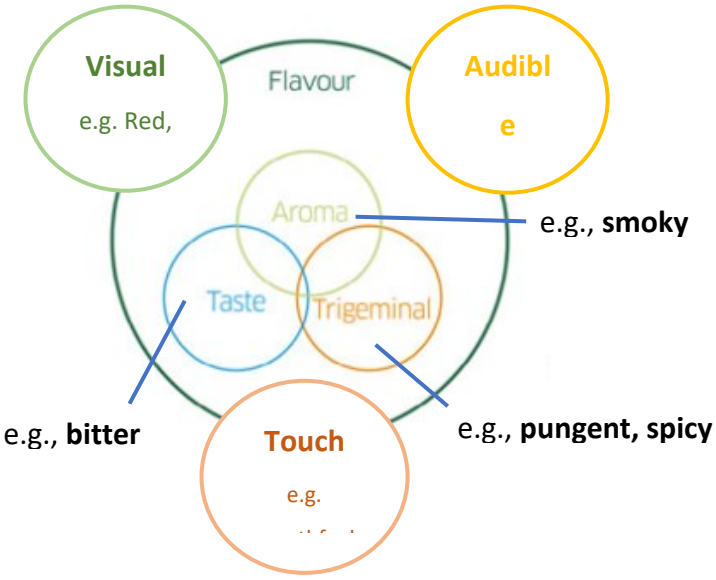
People associate certain colours with different types of food from birth, and then relate these colours to certain tastes and flavours throughout their lives. For instance, yellow may be associated with bananas or lemons, and red may be associated with cherry or cinnamon. Colour is our primary method of determining whether fresh foods are ripe or fresh. When the colour of a food product does not match our expectations, we may perceive its taste and flavour differently.

Food dyes or colours are added to processed, packed, or even fresh foods to give a sense of taste, colour, or quality. By adding a red colourant to an apple's skin, for example, consumers may believe the apple tastes sweeter.

- ***Trigeminal flavour***

We recognize the five basic tastes when we eat. But there are "other tastes" that contribute to flavour. A cooling, astringent, or spicy sensation can generally be categorized under these terms. These sensations are referred to as trigeminal. The trigeminal nerve sends these triggers to the brain. Combined with olfactory and taste components, these trigeminal sensations can enhance the perception of food flavour. A trigeminal sensation is frequently associated with compounds found in certain foods; mint, for example, contains menthol, which gives a cooling sensation, spilanthol, found in a variety of plants, gives a tingling sensation to the tongue (think wine and green tea), while chillies contain capsaicin, which makes them spicy.

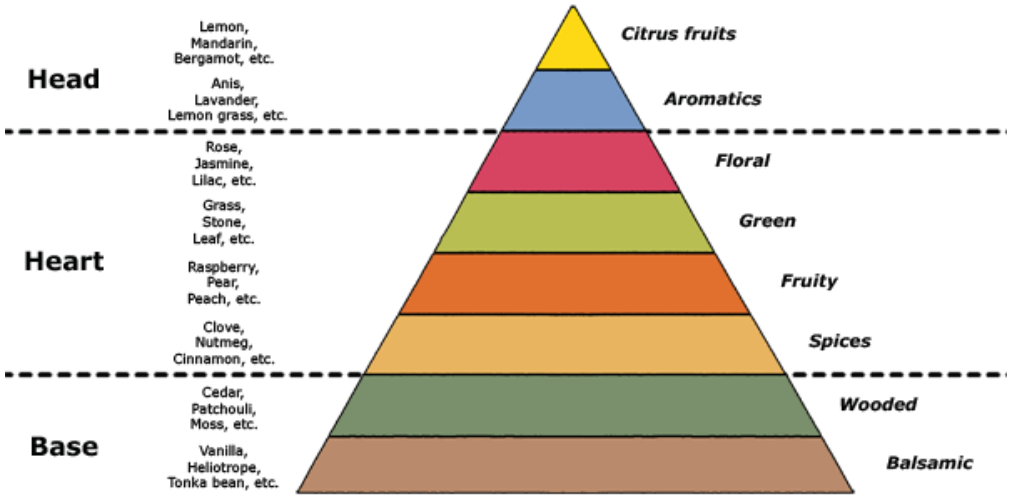
FIGURE 28: FACTORS THAT INFLUENCE FLAVOUR PERCEPTIONS



Flavour Notes

Food products are liked and disliked by individuals based on their flavour preferences. Flavours consist of top, middle, and base notes. A top note can be described as crisp, sharp, effervescent, and easily noticeable. Citrus, berry, pear, and other fruity aromas contribute to the top notes. Immediately following the burst of top notes are the middle notes that join the top notes with the base notes. The soft, warm herbal aromas of lemongrass and nutmeg, or the mildly spicy aromas of lemongrass and cinnamon, give the flavour body. The base notes linger long after the top and middle notes have faded away. The long-lasting aroma of spices like clove, ginger, and cinnamon originates from their heavy, intense aromas.

FIGURE 29: FLAVOUR NOTES



Base Notes:

The lingering flavours are derived from foods that provide an excellent foundation or backdrop to other flavours. Think umami and earthy. A base note is a combination of flavours that hit you at the back of your mouth. These are your deep, meaty, heavy, smoky, warming flavours, such as red meats, root vegetables, bitter greens, cinnamon, nutmeg, and smoked spice blends such as chipotle. "*These are the deeper richer long-lasting or lingering after-taste flavours of a dish".*

Mid Notes:

The flavours in this range are much more subtle. They are not as immediately recognizable and do not linger for as long as the low and high notes do. They are neutral, bland, filler-type flavours. Grains without seasoning, raw vegetables, chicken, fish, and tofu are some examples. *"The fuller, wider, and rounder or body of taste & aroma flavours of a dish".*

Top Notes:

Top notes provide predominant flavours. They are effervescent, bright, and refreshing. Imagine summer foods such as fruits, soft vegetables, lettuce, fresh herbs, hot peppers, and citrus. *"These form the keynote or upfront specific distinctive volatile aroma & visual flavours of a dish".*

Roundness and additions:

This is what ties all those notes together and creates a unified taste. You don't often taste these ingredients themselves because they mostly serve as a complement to other flavours. There can be something mellow, such as butter or cream, or a seasoning, such as salt or sugar. An ingredient–such as lemon juice–will sometimes be needed. There are times when it's more about finding the right balance of ingredients you already have-like adding another teaspoon of salt to bring out the more eminent flavours.

Balancing flavours profiles

1. **Contrast base notes with top notes**

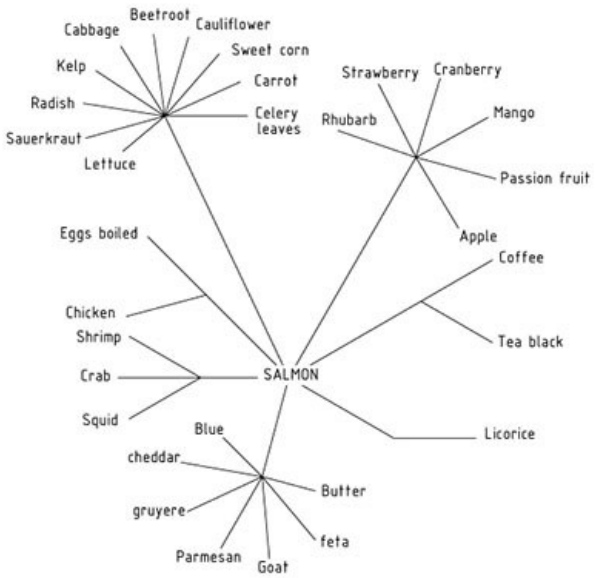
If your dish is predominantly anchored by a base note, contrast it with a top note. For example, a dish with ground lamb and raisins, a rich, meaty dish with a hint of sweetness.

2. **Contrast top notes with base notes**

In dishes dominated by top notes, counter it with a base note. For example, in a salad, avocados can add a level of complexity that high- or mid-note accents cannot.

3. **Enhance mid notes with top and base notes**

If your dish has a dominant middle note, you should add both base and top notes to it. As an example, chicken is better served with mushrooms (base) and peppers (top) rather than just mushrooms or just peppers.



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