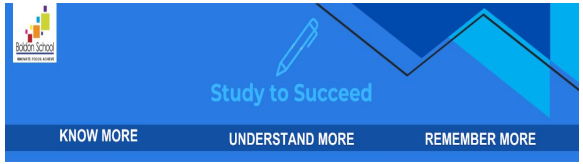
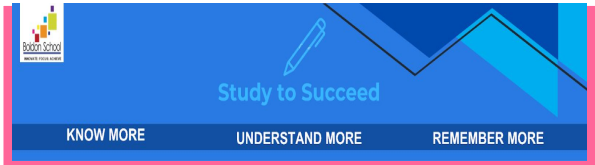
Design & Technology
Year 9
Food Technology Project


Study to Succeed
KNOW MORE
UNDERSTAND MORE
REMEMBER MORE

Different types of pastry

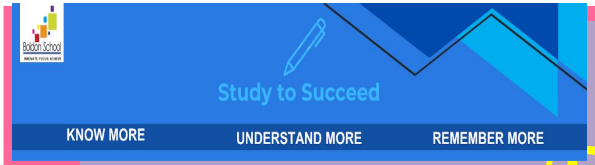
- Short-crust
- Rich shortcrust
- Choux
- Flaky / rough puff
- Suet
- Filo



Pastry is thought to have been invented by the Romans.

The wide range of types of pastry made today vary in texture and taste according to;

1. The proportion of fats used.
2. The way in which the fat is incorporated with the flour.
3. The method used to shape the dough.



Shortcrust

(Ratio 2:1 – flour to fat)

- Fat is rubbed into the flour to look like breadcrumbs
- Water is added to form a firm dough
- Produces a short, crumbly texture when baked
- Best to use block margarine for flavour and sometimes lard for a short texture

- NOTE: Keep everything cold and handle with care

- **Rich short crust** pastry has sugar added and egg yolk is used to bind it together instead of water

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Shortcrust pastry

Flaky / Rough puff

(4:3 flour to fat)

- A quarter of the fat is rubbed into the flour to look like breadcrumbs
- Water is added to form a firm dough
- The remaining fat is added in small lumps and the pastry is folded and rolled several times
- Air is trapped between the layers and the fat produces steam as it melts to form the layers
- Produces a flaky, crisp texture when baked
- Best to use block margarine and lard

- NOTE: Keep everything cold and handle with care

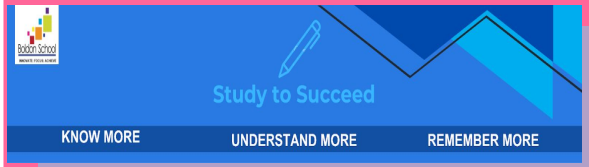
Rough puff / Flaky pastry









Choux pastry

(3:1 flour to fat)

- Fat and water is melted in a pan
- Flour is added to form a thick paste
- After cooling, beaten eggs are added
- This mixture is piped onto baking trays and baked
- The water and fat produce steam to produce a hollow middle
- This pastry has a crisp texture

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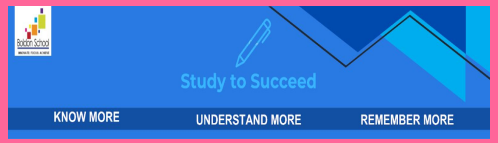
Choux pastry

Filo Pastry

Suet pastry

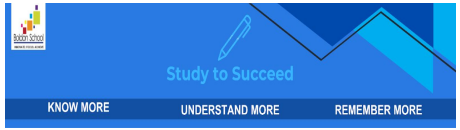


The shortening effect of fat

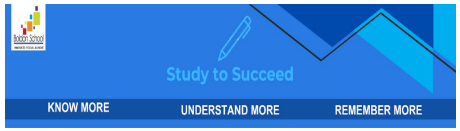
- Fats have a shortening effect in pastry and biscuit mixtures. This is how it happens:

1. **When the fat is rubbed into the flour the fat coats the flour to give a waterproof coating.**
2. **This prevents water being absorbed and prevents the gluten (the protein in flour) from forming which stops the dough being elastic and stretchy.**
3. **If the gluten cannot form this shortens the dough by making it soft and crumbly and having a melt in the mouth texture.**

Examples are shortcrust pastry, shortbread, biscuits.



Ingredient	Types	Function
Flour	Plain flour (for short-crust) Strong flour (for flaky and choux) Whole-wheat	Forms the bulk / structure of the pastry. Low gluten content produces a short crumbly texture. Forms the bulk / structure of the pastry. High gluten content to form an elastic dough. Adds NSP (fibre), colour and texture.
Fat	Block margarine / butter / lard	In short-crust pastry the fat coats the flour to produce a crumbly texture. In flaky pastry the fat melts to create steam which traps air between the layers. Butter adds flavour.
Water		Binds the dry ingredients together. Lemon juice added in flaky pastry strengthens the gluten.
Salt		Adds flavour. Strengthens the gluten.



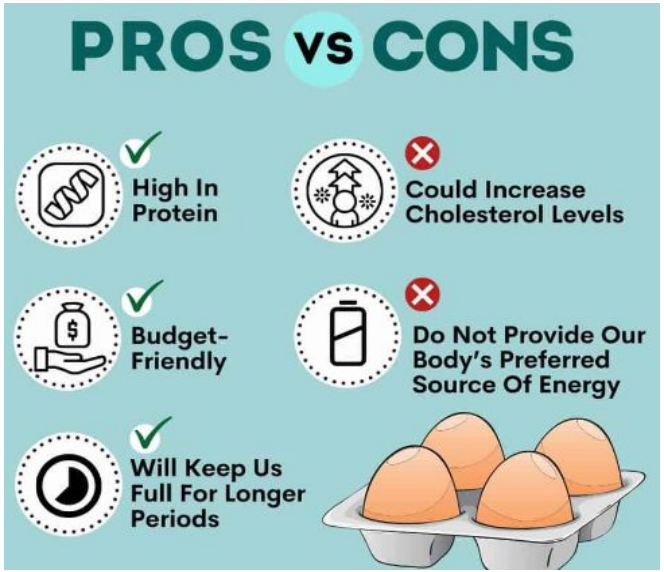
Faults and causes

Short-crust pastry

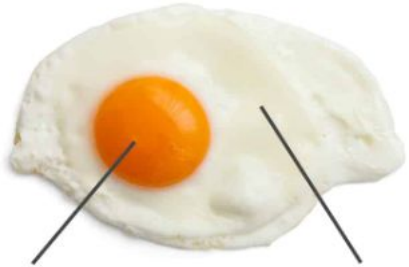
Faults	Causes
Pastry is hard and has a tough texture	Over kneading Too much flour
Pastry is blistered	Oven too high Fats not rubbed in properly
Pastry is crumbly and fragile	Too much fat Not enough water
Pastry has shrunk during cooking	Over working the pastry (kneading and rolling too much)

Rough puff / flaky pastry

Faults	Causes
Pastry has not flaked well	Mixture was too dry Oven too cool
Pastry has shrunk during cooking	Dough not relaxed enough after rolling and making up



Egg Nutrition



Yolk		White	
Fat	**4.5 g**	Fat	0 g
Sat. Fat	**1.6 g**	Sat. Fat	0 g
Cholesterol	**184 mg**	Cholesterol	0 mg
Carbohydrates	0.5 g	Carbohydrates	0 g
Protein	2.5 g	**Protein**	**4 g**

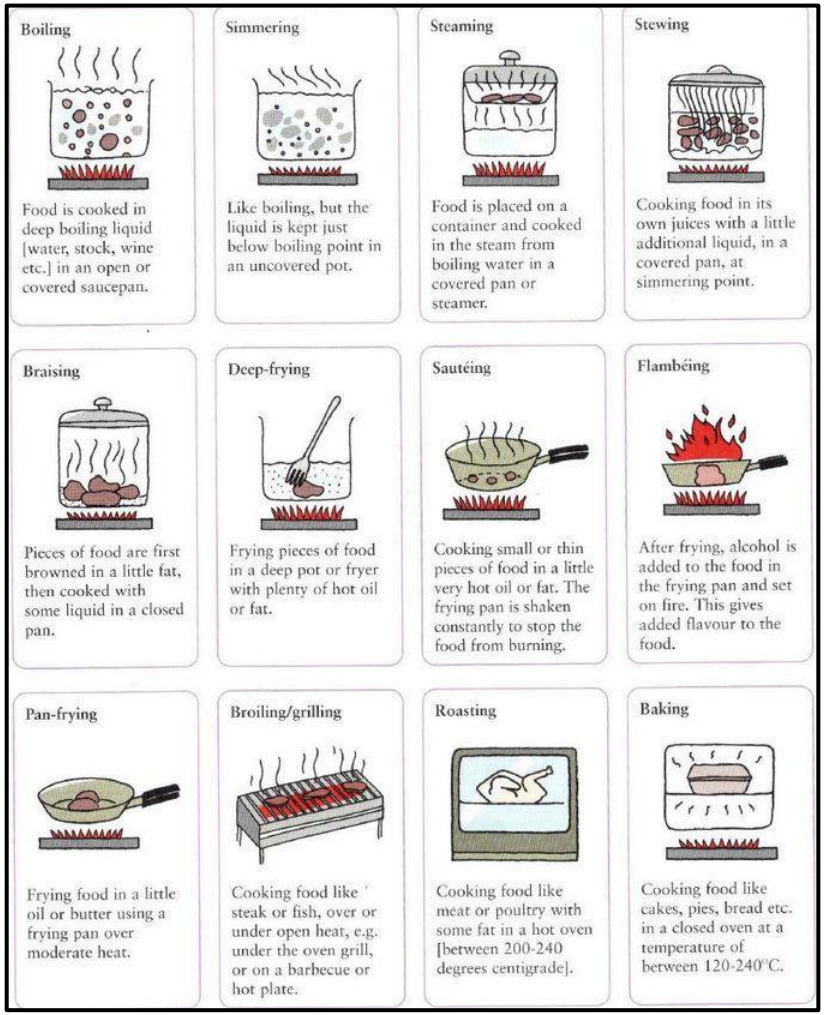
Function of Egg :

1. Egg acts as a binding agent, sticking the ingredients together.
2. Egg helps the burger keep its shape/ create structure – when the egg is heated it coagulates/ sets, therefor holding its shape.
3. Egg adds moisture and stops the burger having a dry texture.
4. Adds flavour from the fat in the egg yolk.
5. Good source of protein, **Eggs** are also rich sources of selenium, vitamin D, B6, B12 and minerals such as zinc, iron and copper.

Breadcrumbs:

1. Bread is a staple food and important in the diet.
2. Adds texture to the burger.
3. Bread is a carbohydrate and gives you energy, as well as B vitamins which release energy from food..

Cooking Methods



Boiling

Food is cooked in deep boiling liquid [water, stock, wine etc.] in an open or covered saucepan.

Simmering

Like boiling, but the liquid is kept just below boiling point in an uncovered pot.

Steaming

Food is placed on a container and cooked in the steam from boiling water in a covered pan or steamer.

Stewing

Cooking food in its own juices with a little additional liquid, in a covered pan, at simmering point.

Braising

Pieces of food are first browned in a little fat, then cooked with some liquid in a closed pan.

Deep-frying

Frying pieces of food in a deep pot or fryer with plenty of hot oil or fat.

Sautéing

Cooking small or thin pieces of food in a little very hot oil or fat. The frying pan is shaken constantly to stop the food from burning.

Flambéing

After frying, alcohol is added to the food in the frying pan and set on fire. This gives added flavour to the food.

Pan-frying

Frying food in a little oil or butter using a frying pan over moderate heat.

Broiling/grilling

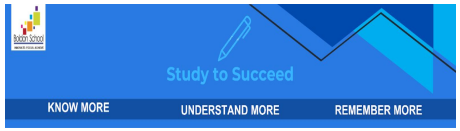
Cooking food like steak or fish, over or under open heat, e.g. under the oven grill, or on a barbecue or hot plate.

Roasting

Cooking food like meat or poultry with some fat in a hot oven [between 200-240 degrees centigrade].

Baking

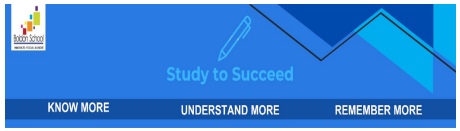
Cooking food like cakes, pies, bread etc. in a closed oven at a temperature of between 120-240°C.



Cooking with water

Cooking methods that need water or liquids are

- ***Boiling*** – foods such as vegetables are boiled in water in a saucepan AT 100°C
- **Simmering** – foods that need more gentle cooking e.g. eggs. Just below boiling point so it bubbles gently
- **Steaming** – food is cooked in the steam rising, this is very popular in Chinese cooking.
- **Poaching** – food is cooked in a shallow pan of water or wine, occasional bubbles.
- **Stewing** – cook food by simmering gently in a covered pot in the oven, on the hob or in a slow cooker.



Cooking with fat

Fats like vegetable oil and butter are used to fry food. This adds flavour. Food cooks quickly when you fry it and it turns crispy.

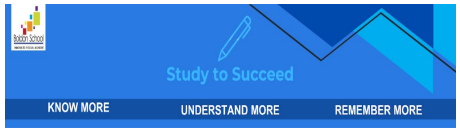
- **Shallow frying** – food is cooked in a shallow frying pan in a little oil. This is used for eggs, fish, bacon, sausages etc.

- **Sauteing** – food is fried gently in a little oil, to soften the food and develop the flavour.

- **Deep fat frying** - foods are cooked in a lot of hot fat e.g. oil or lard. This is used to fry fish in a chip shop

- **Stir frying** - foods are fried for a short time in a wok, using very little oil and stirring all the time.

- **Braising** – Meat/ poultry are quickly fried at a high temperature (seared/ sealed).
  Then cook it slowly in a covered dish with liquid.



Cooking in the oven

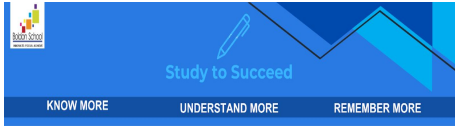
- **Baking** – foods are cooked in a hot oven. Baked foods include baked potatoes, cakes and bread.

- **Roasting** – cooking food in some fat or oil in the oven. e.g. to make roast potatoes you would brush the potatoes with butter/ oil then put them in a baking tray.

Using the grill

- **Grilling/ barbecuing** – foods are cooked with radiant heat on a metal grid/ grill rack underneath a heated grill element in a cooker or above a glowing charcoal/ flames in a barbeque.

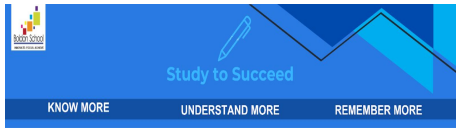
- **Toasting** – cooking starch based foods with a dry heat from a grill or flame. e.g., bread, crumpets, nuts



Other methods of cooking

- **Microwave cooking** – this means cooking food by electromagnetic waves called microwaves, in a microwave oven. It is a quick way to cook food or for re-heating food. Foods that can be microwaved include ready meals, vegetables, soups, cakes etc

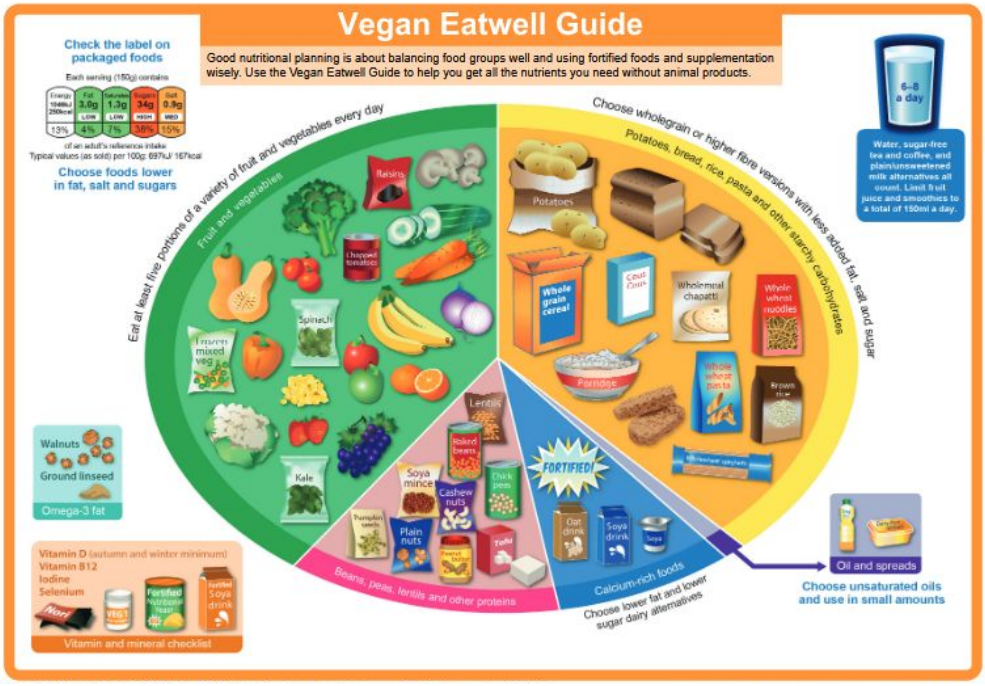
- **Induction cooking** – is a method of cooking where heat energy is transferred quickly to a pan through a specially designed ceramic cooking surface, over an induction coil that creates a magnetic current. Pans that are used on an induction hob must contain iron e.g. cast iron, stainless steel or steel.

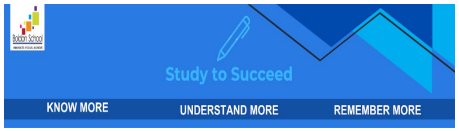


Keywords

Seared
Sealed
Wok
Radiant
Starch
Liquids
Fats
Occasional
Gently
Shallow
Develop
Poultry
Element
Dry heat

Boiling
Stewing
Simmering
Toasting
Steaming
sauteing
poaching
Microwaving
Frying
Braising
Baking
Roasting
Grill
Induction





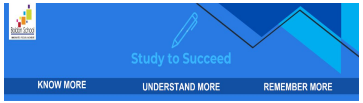
Vegan sources of Vitamin D

The body needs vitamin D to regulate the amount of calcium and phosphate in the body. These nutrients help keep bones, teeth and muscles healthy.

- exposure to sunlight, particularly from late March/early April to the end of September – remember to cover up or protect your skin before it starts to turn red or burn

- fortified fat spreads, breakfast cereals and unsweetened soya drinks (with vitamin D added)

- vitamin D supplements
  Read the label to ensure the vitamin D used in a product is not of animal origin.



Vegan sources of iron

Iron is essential for the production of red blood cells.
A vegan diet can be high in iron, although iron from plant-based food is absorbed by the body less well than iron from meat.
Good sources of iron for vegans are:

- pulses
- wholemeal bread and flour
- breakfast cereals fortified with iron
- dark green, leafy vegetables, such as watercress, broccoli and spring greens
- nuts
- dried fruits, such as apricots, prunes and figs

Vegan sources of Vitamin B12

The body needs vitamin B12 to maintain healthy blood and a healthy nervous system.
Many people get vitamin B12 from animal sources, such as meat, fish and dairy products. Sources for vegans are limited and a vitamin B12 supplement may be needed.
Sources of vitamin B12 for vegans include:

- breakfast cereals fortified with B12
- unsweetened soya drinks fortified with vitamin B12
- yeast extract, such as Marmite, which is fortified with vitamin B12

Vegan sources of omega-3 fatty acids

Omega-3 fatty acids, primarily those found in oily fish, can help maintain a healthy heart and reduce the risk of heart disease when eaten as part of a healthy diet.

Sources of omega-3 fatty acids suitable for vegans include:

- flaxseed (linseed) oil
- rapeseed oil
- soya oil and soya-based foods, such as tofu
- walnuts

Evidence suggests that plant sources of omega-3 fatty acids may not have the same benefits in reducing the risk of heart disease as those in oily fish.

But if you follow a vegan diet, you can still look after your heart by eating at least 5 portions of a variety of fruit and vegetables every day, cutting down on food that's high in saturated fat, and watching how much salt you eat

Reasons for becoming Vegan:

1)Health
2)Religious
3)Ethical
4)Other

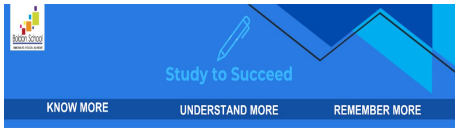
What are the benefits to health and the environment?

https://www.youtube.com/watch?v=5QwKBNWOgbA
What If the world went Vegan 3 min

https://www.youtube.com/watch?v=eMo4znGdhl4

What I eat in a day

Possible benefits include:
Weight loss / heart health / blood pressure control / gut health / healthy skin



Food Presentation: The Plate

- The plate's function is to present and reveal the food
- Patterns and colours should not interfere with food and size should be proportional to the food volume.
- For these reasons, professionals use most often plain white plates to express their creativity.

Food Presentation: The focal point

- The focal point is the thing that will mainly attract the eye (e.g. the piece of cake/ cheese cake).
- It should not hide other items.
- It can also be the biggest part. For a main dish, this is often the piece of meat or fish.

Food Presentation: The colours

- Colour is very important . Green brings coolness and calms down. Red stands for passion and excitement. Black is a sign of elegance. Blue is a natural appetite suppressant and makes food unappetizing.
- Vegetables are important because of their contrasts of colours and shapes. Care must be taken to use them wisely, in a way that presents them without hiding others.

Food Presentation: The textures

- Texture is a critical component of good food presentation.
- Good food presentation contrasts textures.
  These contrasts are made by different preparation methods.

Food Presentation: The decoration

- The decoration must be edible and work with the other flavours. It can be herbs, spices or ingredients used in another form.

Food Presentation: The garnish

- Garnish increases the texture and flavour of a dish. The plate must have a balanced and clear appearance.

Cucumber lotus

The Thai art of vegetable carving is quite sophisticated, but if you have the taste for it, there are courses where you can learn the art. This simple cucumber garnish makes a pretty plate decoration for canapés.

YOU WILL NEED

- 1 cucumber
- Vegetable carving knife
- Cutting board

PRESENTATION

Impress your dinner party guests with a tray of king prawn, cucumber jello and mint canapés, garnished with an elegant cucumber lotus.

TIP

- Vegetable carving sets are available from specialist suppliers. These knives have short blades for maximum control, and are sharp and thin, perfect for fine detail.

1 Choose a cucumber with plump, unblemished skin. Halve it lengthwise. If you are making a small number of lotus, you may want to use only a half of the cucumber.

2 Now place the cucumber vertically onto your cutting board, and make a diagonal cut. The angle should be as sharp as you can make it, so that you can create long enough strips for the leaves. Make another diagonal cut parallel to the first one, and about ⅔ in (1.5 cm) apart.

3 You will now have a piece of cucumber cut at a sharp angle. Working from left to right, make several very straight cuts, as close together as you can, but stopping each cut ⅕ in (5 mm) from the right-hand edge.

4 Now take the first strip and fold it over to form a leaf shape. Continue in this way, curling every alternative leaf around and leaving the others straight, until you have your finished lotus leaf. Cover the lotus leaves with wet paper towels and refrigerate until needed.

Tomato rose

A tomato rose looks complicated, but it's actually relatively easy to make. Use the roses singly as a garnish to a plate of canapés, or for more impact dress your plate with two or three.

YOU WILL NEED

- Tomatoes
- Sharp knife
- Cutting board

PRESENTATION

TIP

- Tomato roses can be stored for up to one day in the refrigerator. Cover a plate with wet paper towels, put the roses on top, and then cover with plastic wrap.

1 Select a firm tomato, without bruising. Cut a slice straight across the top, but not all the way. This will create a disc of tomato, which will eventually form the base of the rose. Leave a piece ⅔ in (1 cm) wide still attached to the tomato. This will be the start of the peel.

2 Starting at this point, use a firm and even cut to peel a spiral. Hold the tomato close to the cutting board so that the weight of the cut peel does not break away from the disc of tomato.

3 Carry on cutting with a steady hand, watching where the knife cuts at the top and bottom. Continue in this way to the top of the tomato, until you have a long piece of even peel.

4 Now take the end of the peel and wind it in on itself tightly. Sit the resulting tomato rose on the previously cut disc of tomato.