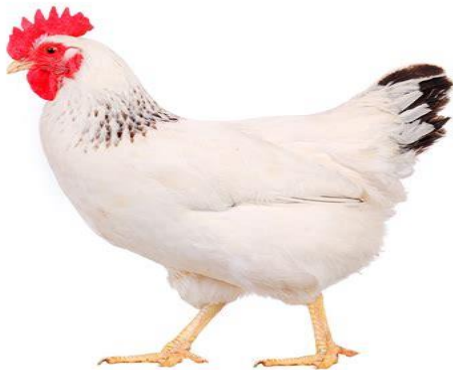




Training Modules for Engaging Young Entrepreneurs in Chicken Meat Frying Business



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Cooking Methods

Dry heat Method

It is a cooking method without getting wet in the heating process. Higher temperatures than those used in moist heat cooking methods are employed in dry heat cooking, which has different effects on food's nutritive value and physical appearance. All heat-sensitive nutrients, except for most of the mineral elements, are affected to some extent by dry heat methods.

a. Roasting

- Roasting is cooking in dry heat with the aid of fat or oil in an oven or on a spit. It is cooking meat or vegetables in the oven, basting them with hot fat to prevent drying and develop color and flavor. Radiant heat is the means of cooking when using a spit; oven roasting combines convection and radiation.

Methods

A. **Oven Roasting**:- is cooking in an oven with the aid of fat and is applied to first-class meat, poultry, and certain vegetables.

* To roast means to cook foods by surrounding them with hot, dry air, usually in an oven.

B. **Spit Roasting**:- is cooking by direct (radiated) heat with the aid of fat in the form of basting (the spit must constantly revolve). It is applied to first-quality joints of meat and game, and poultry. It is the original form of roasting, but because of many disadvantages in practice, oven roasting has developed in its place.

Note

1. Cooking uncovered is essential to roasting. Covering holds in steam, changing the process from dry-heat to moist-heat cooking, such as braising or steaming.
2. Meat is usually roasted on a rack (or if it is a rib roast, on its own natural rack of bones). The Rack prevents the meat from simmering in its own juices and fat. It also allows hot air to circulate all around the product.
3. When roasting in a conventional oven, the cook should allow for uneven temperatures by occasionally changing the product's position. The back of the oven is often hotter because heat is lost at the door.

Effects of Roasting

The initial heat of the oven, thus sealing it and preventing the escape of too many natural juices, seals the surface protein of the food. When the food is lightly browned, the oven temperature is reduced to cook the inside without hardening the surface.

Advantage of Roasting

1. Suitable quality joints of meat can be tenderized, and their flavor is well developed.
2. Little attention is required while the meat roasts, except to pass the joint.
3. Meat juices from the joint are used for gravy and enhance flavor.
4. Ovens with transparent doors enable cooking to be observed.
5. Minimal Fire risk.
6. Skill and techniques can be displayed to the customer in spit roasting.
7. Both fuel and labor can be saved if other items are baked in the oven simultaneously.

Time and Temperature Control

- Ovens must be preheated
- oven temperature and shelf settings in recipes must be followed.
- Shape, size, type, bone proportion, and quantity of food will affect the cooking time.
- Meat thermometers can be inserted to determine the exact temperature in the center of the joint.

Safety

1. Roasting trays should be suitable if too small; basting becomes difficult and dangerous; if too large, fat in the tray will burn, spoiling the flavor of the meat and gravy.
2. Handle hot roasting trays carefully at all times, using a thick, dry cloth.
3. Ensure food is securely held before removing it from the roasting tray.

C. Frying

Frying is a quick, convenient, and popular cooking method involving high temperatures. Fats or oils are used.

There are two types of frying.

1. Shallow frying
2. Deep frying

1. Shallow frying: cooking food in a small quantity of pre-heated fat or oil in a shallow pan or on a flat surface (griddle plate).

Methods of shallow frying

There are four methods of frying using a shallow amount of fat or oil:

1. **Shallow fry**:- The cooking of food in a small amount of fat or oil in a frying pan.

The presentation side of the food should be fried first as this side will have a better appearance because the fat is clean, then turned so that both sides are cooked and colored.

This applies to small cuts of fish, meat, poultry, and small whole fish. Eggs, pancakes, and certain vegetables are cooked by this method.

2. **Sauté**:- Tender cuts of meat and poultry are cooked in a sauté or frying pan. After the food is cooked on both sides, it is removed from the pan, the fat is discarded, and the pan is deglazed with stock or wines.

This then forms an important part of the finished sauce.

3. **Griddle**:- Foods cooked on a griddle (a solid metal plate): hamburgers, sausages, or sliced onions are placed on a lightly oiled preheated griddle and turned frequently during cooking,

4. **STIR FRY**:- Vegetables, strips of beef, chicken, etc., can be fast fried in a frying pan in a little fat or oil:

2. Deep Frying

This is the cooking of food in preheated deep oil or clarified fat. It involves the immersion of food in a pan of hot fat so that the food is covered by the fat while frying.

Preparing food for deep frying

Foods to be deep-fried, e.g., fish, meat, and fruit, should first be coated to prevent overcooking, the loss of juices from the food, and absorbing too much fat.

Suitable protective coatings include:-

- Beaten egg and breadcrumbs
- Seasoned flour and Beaten egg
- Flour, beaten egg, breadcrumbs

- Egg, flour, and milk batter

When the food is placed in the hot fat, the egg in the coating coagulates rapidly and thus forms.

a protective layer around the food, which becomes crisp and golden brown. The food inside continues to cook by conduction and retains its flavor and texture.

Fat should not be heated beyond the required temperature, as decomposition of the fat molecules occurs at high temperatures, and this leads to the release of free fatty acid, which affects the qualities and flavor of the fat.

Methods for deep-frying

A. Conventional deep-fried foods, except potatoes, are coated with milk and flour, egg and crumbs, batter, or pastry to:

1. Protect the surface of the food from intense heat.
2. Prevent the escape of moisture and nutrients.
3. Modify the rapid penetration of the intense heat.

The Food is carefully placed into deep preheated oil or fat, fried until cooked and golden brown, well-drained, and served.

B. **Partial deep-frying.** It is known as blanching and may be applied to chipped potatoes. The purpose is to cook before service and complete the cooking to order partly.

Effects of deep frying

The effects of deep frying on coated items are that the surface is sealed by coagulation of the protein with the minimum absorption of fat and retains the nutrients and flavor of the food. However, with uncoated items, the food absorbs a large amount of fat, thus affecting the texture and nutritional content.

General Rules

- Never overfill fryers with fat or oil or food to be cooked.
- The normal frying temperature is between 175⁰C and 195⁰C; this is indicated by a slight heat haze rising from the fat.
- Do not attempt to fry too much food at one time.
- Allow the fat to recover its heat before adding the next batch of food.

- Make sure the correct oil/fat ratio to food. If too much food is cooked in too little fat, even if the initial temperature of the fat is correct, the effect of a large amount of food will reduce the temperature drastically and spoil the food.
- Restrict holding time to a minimum; foods soon lose their crispness.
- Oil and fat should be strained after use. Otherwise, the remaining food particles will burn when the fat is next heated, thus spoiling the appearance and flavor of the food.
- Always cover oil or fat when not in use to prevent oxidation.

Microwave cooking

Microwave cooking is a method of cooking and re-heating food using high-frequency power in a microwave oven powered by electricity. The microwaves activate the water molecules or particles of food and agitate them, causing heat by friction which cooks or reheats the food. Food cooked by microwave needs no fat or water and is placed in a glass, earthenware, plastic, or paper container before being put in the oven. Metal is not used as microwaves are reflected by it.

Advantages of Microwave cooking

1. Food is cooked very quickly, saving between 50 and 70 percent over conventional cooking times in a certain food.
2. A fast method of defrosting foods.
3. The food heats up, but the oven doesn't. This prevents the kitchen from becoming uncomfortable to work in.
4. Economical on:
 - a) Electricity-less energy required
 - b) Labor-less washing up as foods can be cooked in serving dishes
5. There is less heat destruction of nutrients as cooking time is short.
6. Some foods, e.g., vegetables, are improved in color and flavor as cooking time is shorter.
7. The microwave does not heat the serving dish or cooking utensils and can be handled. It may only become hot by the conduction of heat from the cooked food.

Disadvantages of Microwave cooking

1. limited oven space, hence, not convenient for mass cookery.
2. It is easy to overcook the food, so careful attention must be paid to timing.
3. Not suitable for all foods, e.g., deep frying, boiling, and simmering.
4. Many microwave ovens do not brown and simmer and crisp food, although browning elements are available within certain models.
5. Not all containers are suitable for use.
6. Irregularly shaped food may affect the cooking time and finished result of foods cooked on the same plate. This may necessitate separate cooking.

Characteristics of microwaves

Microwaves, like light rays, have the following important characteristics.

- Penetration
- Reflection
- Absorption

Penetration: The waves can pass through certain substances without being absorbed. For example, glass, plastics, and China paper transmit microwaves but do not heat up. Therefore, food containers made from such materials do not become hot from microwaves but may conduct heat from the food cooked in the oven cavity.

Reflection:- Microwaves are reflected from such substances as metals that are good conductors of electricity. As a result of these reflection characteristics, metal or metal-banded containers are generally unsuitable for microwave ovens, as waves are reflected from the container surface and not absorbed by the food.

Absorption:- Cooking is achieved by the molecular disturbance created when the radio wave energy is absorbed by food. Substances containing a high proportion of water easily absorb microwaves.

Foods that are not suitable for microwave cookery

It is impossible to deep fry items in a microwave and boil eggs in their shells. Eggs cooked in their shells would burst because of the build-up of pressure inside the shell, but scrambled, poached, and fried eggs (in a browning dish) are successful. However, although deep frying is not possible because the temperature of the cooking fat can't be controlled, microwaving bread-crumbed fish in a tablespoon of oil will give a similar result.

2. Food safety and sanitation

What is Foodborne Illness?

Commonly known as food poisoning, it is caused by eating food contaminated by bacteria or other harmful substances.

Why is Food Safety and Sanitation in Child Care Settings Important?

Infants and preschool-aged children are a high-risk population for contracting food-borne illnesses.

Their bodies have not built up adequate immune systems to fight illness.

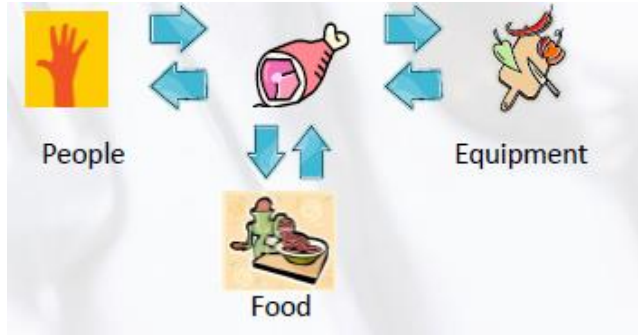
What contaminates food?

- **Chemical hazards** –cleaning supplies
- **Physical hazards** – foreign objects, i.e., dirt, hair, glass
- **Biological hazards** – bacteria & viruses (microorganisms)

*Greatest threat to food safety, responsible for the majority of foodborne illness outbreaks

How does food become contaminated?

Cross-contamination is the contamination of a food product from another source:



Bacteria also need to grow before they become a foodborne threat.

Proper food handling practices are important to reduce the likelihood that bacteria will be allowed to grow and contaminate food:



How can I prevent cross-contamination of food and foodborne illness?

Preventative measure

- Good Personal Hygiene
- No Bare Hand Contact with Food
- Purchase Safe Food
- Store Food Properly
- Prepare and Cook Food Adequately
- Clean and Sanitize

Good personal hygiene

Good personal hygiene is the most important tool to prevent food-borne illness.

Bacteria like Staphylococci are found on healthy people's hair, skin, mouth, nose, and throat.

According to one estimate, nearly 50 percent of healthy food handlers carry disease agents that food can transmit.

- ✚ Food preparers, food servers (anyone involved with food service to children)
- ✚ Do not allow people with infected cuts/sores, colds, or other communicable diseases to prepare or serve food.

Hand Washing

- The single most important means of preventing the spread of infection and illness, and cross-contamination

Proper Hand Washing Procedure:

- Wet your hands with running water as hot as you can comfortably stand.
- Apply Soap
- Vigorously scrub hands and arms for ten to fifteen seconds
- Rinse thoroughly under running water.
- Dry hands and arms with a single-use paper towel or warm air hand dryer

Hands should be washed:

- Before preparing food
- After using the toilet
- After sneezing, coughing, or blowing your nose,
- After touching foods or other items that may be contaminated with bacteria or other harmful substances

No bare-hand contact with food.

Food Preparers

- SINGLE-USE gloves shall be used when working with
- Ready-to-eat food items (bread, fruits/vegetables, deli meats, and cheeses, tuna fish)
- Raw animal food (chicken, pork, beef)

SINGLE-USE Gloves

one pair of gloves may not be used for multiple tasks. When interruptions occur in operation (ex., the food preparer needs to get something from the refrigerator/storage room), gloves must be replaced because they become contaminated by touching door handles, packaging, etc.

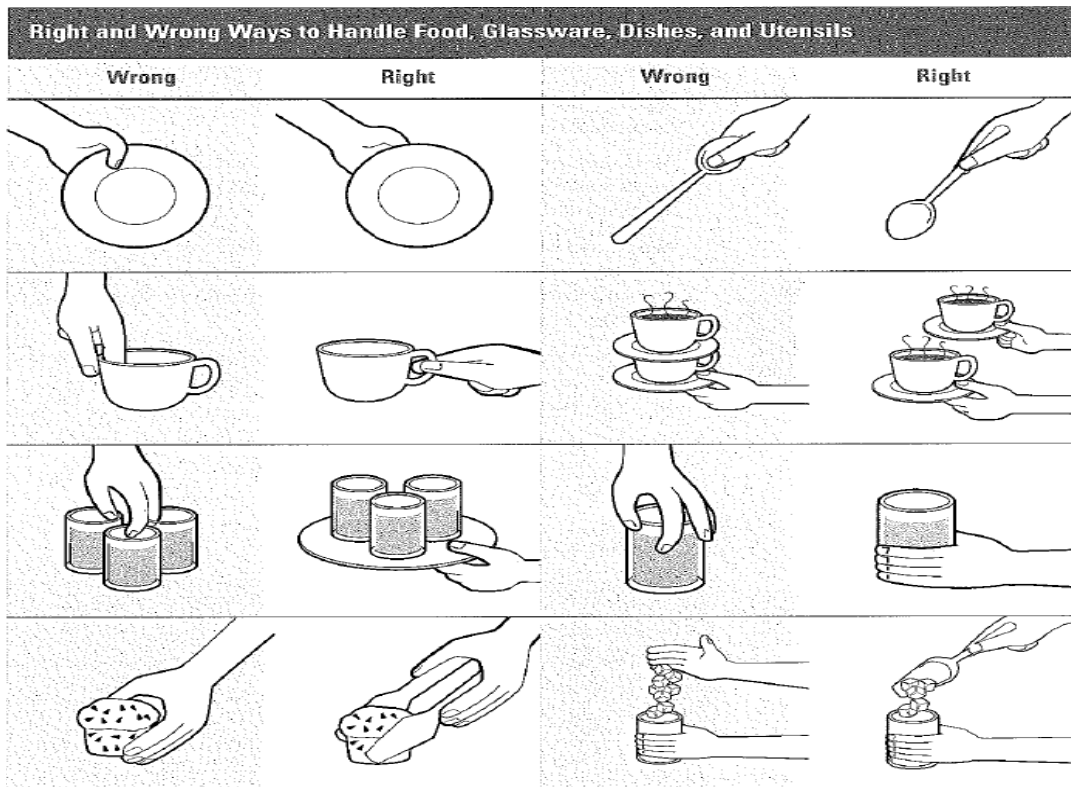
Food Servers (food preparer, teacher, helper)

- Use utensils (tongs, serving spoons, spatulas) when serving or handling food
- Use SINGLE-USE gloves

•Have children serve themselves family-style with utensils. Kids can also grab food themselves –an opportunity to teach.

SINGLE-USE gloves —one pair of gloves may not be used for multiple tasks. When interruptions occur during food service (ex., the food server needs to pick up a fork that fell on the floor, help a child push in a chair, touching anything but the prepared food), gloves must be changed.

Do not touch food contact areas with bare hands when handling glassware, dishes, and utensils.



Purchase safe food.

VENDORS

- Buy only from reputable suppliers.
- Inspect deliveries carefully.
- Sample temperatures of received food items.
- Put refrigerated and frozen items away immediately.

GROCERY STORE

- Read the label –do not buy food past the “sell-by,” “use-by,” or other expiration dates.
- Purchase meat, poultry, and dairy products last
- Ground beef should be **cherry-red or purple red** in vacuum packaging.
- Place meat, poultry, and seafood in plastic bags to prevent juices from dripping on other foods in the cart.
- Keep raw meat, poultry, and seafood separate from other food items.
- Check that all food packages are intact.
- Select fresh produce, not bruised or damaged.

Store food properly

Keep out of the temperature danger zone.

- Refrigerator –40°F or lower
- Freezer -0°F or lower

Label and date food

- Leftover prepared food not served must be labelled and dated, refrigerated promptly, and used within 36 hours, or frozen immediately for later use.
- Commercially prepared, ready-to-serve opened food items can be kept up to 7 days when they are properly stored/refrigerated.







○

Dry Storage

- Dry food should be stored in sealed containers (zip-type bags, metal, glass, or food-grade plastic containers with tight-fitting covers) and shall be labeled.
- Clean, dry, ventilated, and lighted storerooms or areas protected from sewage, wastewater backflow, condensation, leakage, or vermin contamination.

Prepare and cook food adequately.

Thaw Foods Properly

In Refrigerator		At 40°F or lower
Under Cold Running Water		Water must be 70°F or lower
Microwave		Food must be cooked immediately after thawing
Part of Cooking Process		Food must meet the required minimum internal cooking temperature

Cook to Minimum Temperatures

Sample: 165°F

- Poultry, •Stuffing/Casserole, •Hazardous food cooked in the microwave (eggs, poultry, meat, fish)



Doneness versus Safety:

- Doneness is subjective. It is food's appearance, texture, color, smell, and flavour.
- Safety is cooking to the required minimum temperature to destroy bacteria. Use a food thermometer to measure accurately.

Leftovers

- Heat to 165°F and bring gravies and sauces to a rolling boil before serving.
- In the microwave, beware of cold spots and use a food thermometer to check the temperature in several places.

Avoid the danger zone.

Keep hot food hot and cold food cold!

135°

DANGER ZONE

- When **cold** food goes above 40°F
- When **hot** food falls below 135°F
- Bacteria can multiply rapidly in perishable food left in the danger zone for more than 2 hours
- Throw away perishable food that has been left at room temperature for more than 2 hours

Keep hot food hot and cold food cold!

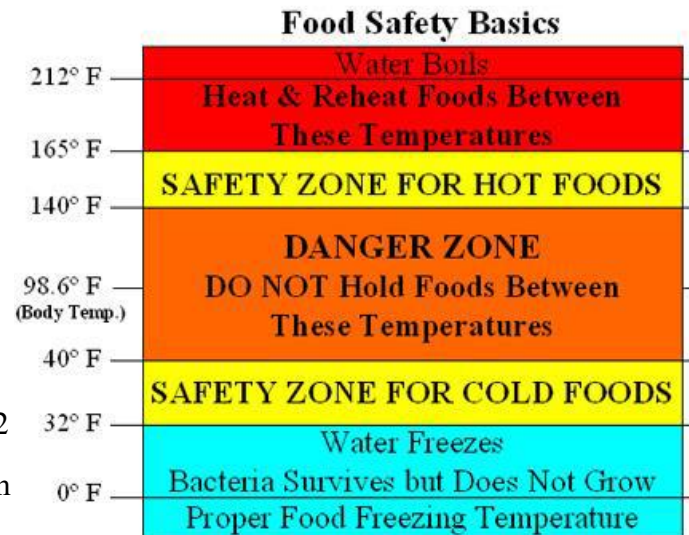
Clean and sanitize.

Any surface that encounters food must be cleaned and sanitized.

- **Clean:** Remove food and other types of soil from a surface
- **Sanitize:** Reduce the number of microorganisms on a clean surface to safe levels
- Bleach Solution: One capful of bleach (1 ½ tsp) to one gallon of water
- Other approved sanitizers

What surfaces?

- Kitchen counters
- Knives, mixing spoons, and other utensils.
- Mixing bowls and other food preparation containers
- Cutting boards
- Tables children eat on
- **Dishwashing Procedures** (see next slide for illustration)
- **Manual** (3-compartment sink)



1. Rinse, scrape, or soak items before washing
2. Wash in 110°-125°F water, using soap/detergent
3. Rinse by immersing in clean, hot water to remove soap/detergent or by spraying soap/detergent off, removing all traces of food and detergent. If dipping the items, change the rinse water when it becomes dirty or full of suds.
4. Sanitize for a minimum of 2 minutes in 1 ½ teaspoons of bleach per gallon of water (or other Department of Health Services-approved sanitizer)
5. Air-dry Items—upside down so they will drain

Dishwashing Procedures continued

Commercial

- The dishwasher shall have a visible temperature gauge.
- Wash at 130°F to 150°F for 20 seconds, rinse and sanitize at 180°F for 10 seconds or more OR use chemical sanitizer.
- All dishes/utensils must be air-dried.

Home-type dishwasher

- After the dishwasher is done, sanitize dishes/utensils by submerging for a minimum of 2 minutes in 1 ½ teaspoons of bleach per gallon of water (or other Department of Health Services-approved sanitizer)
- All dishes/utensils must be air-dried



3. Chicken recipe

A. Roast Chicken with Chile-Basil Vinaigrette, Charred Broccoli, and Potatoes



Ingredients

- 4 quarts water
- 1 ½ cups plus 1 tablespoon kosher salt, divided.
- ¼ cup granulated sugar
- 1 (4-pound) whole chicken, backbone removed, split through breastbone
- 6 medium garlic heads
- ⅓ cup plus 7 tablespoons olive oil, divided
- ⅓ cup Dijon mustard
- 5 thyme sprigs, divided.
- 1 pound fingerling potatoes halved lengthwise.
- 1 ½ cups pearl onions or 4 shallots, halved.
- 1 rosemary sprig

- 2 medium broccoli heads, stemmed and cut into 1/2-inch-thick planks.
- 2 teaspoons crushed red pepper, or more to taste.

- 1 ½ tablespoons fresh lemon juice
- ½ cup [Chile-Basil Vinaigrette](#), plus more for serving
- ¼ cup loosely packed fresh basil leaves

Directions

1. Bring 4 quarts of water to a simmer in a large stockpot over medium-high. Remove from heat; whisk in 1 1/2 cups salt and sugar until dissolved. Let cool completely, about 1 hour. Add chicken; cover and refrigerate at least 30 minutes or up to 8 hours or overnight. Remove chicken from brine, discard brine. Place chicken, skin side up, on a wire rack set inside a baking sheet, pat chicken dry. Refrigerate chicken, uncovered, 8 hours or overnight.
2. Preheat oven to 375°F. Trim 1/2 inch from top of each head of garlic to expose cloves. Place garlic on a large sheet of aluminum foil. Drizzle 1/2 teaspoon olive oil over each head; wrap tightly with foil. Place on a baking sheet; transfer to preheated oven, and roast until cloves are tender and lightly golden, about 45 minutes.
3. Squeeze cloves from 5 garlic heads into a food processor; discard skins. Reserve remaining roasted garlic head for Chile-basil vinaigrette. Pulse garlic until finely chopped. With the processor running, gradually drizzle in 1/3 cup olive oil, processing until smooth, about 1 minute. Add mustard and leaves from 2 thyme sprigs; pulse to combine. Rub garlic mixture all over chicken halves; refrigerate, skin side up, uncovered, for at least 1 hour or up to 8 hours or overnight.
4. About 1 hour before serving, preheat oven to 400°F with racks in the upper and lower third positions. Place a large, rimmed baking sheet on top rack while the oven preheats. Toss together potatoes, onions, rosemary, 2 tablespoons oil, 2 teaspoons salt, and 3 thyme sprigs in a large bowl.
5. Remove chicken from refrigerator; wipe off excess marinade—heat 2 tablespoons oil in a large, heavy skillet over medium. Add chicken, skin side down; cook until deeply browned on the bottom, 6 to 10 minutes. Flip chicken, and transfer skillet to lower rack in preheated oven. Roast until a thermometer inserted in the thickest portion of meat registers 155°F for 30 to 40 minutes.
6. add the potato mixture to the preheated baking sheet while the chicken roasts, spreading in an even layer. Return to the top oven rack; roast for 20 minutes.

Meanwhile, toss broccoli planks with crushed red pepper, 2 tablespoons oil, and 1 teaspoon salt. Remove pan with potatoes from oven; arrange broccoli on top of potato mixture and return to oven. Roast until broccoli is crisp-tender and potatoes can be easily pierced with a fork, 10 to 15 minutes.

7. Remove chicken from oven; increase oven temperature to high broil. Broil broccoli mixture, watching carefully, until well charred, 3 to 5 minutes.
8. Transfer the broccoli mixture to a large platter, drizzle with lemon juice. Place chicken on top of vegetables, and smother with Chile-basil vinaigrette. Sprinkle with basil; serve with additional vinaigrette.

B. Roasted Chicken Legs with Potatoes and Kale



Ingredients

- 1 1/2 pounds tender, young kale, stems, and inner ribs removed.
- 1 1/2 pounds medium Yukon Gold potatoes sliced 1/4 inch thick.
- 1 medium onion thinly sliced.
- 1/4 cup extra-virgin olive oil
- Salt and freshly ground pepper
- 8 whole chicken legs (about 10 ounces each)
- 1 teaspoon paprika

- Lemon wedges for serving.

Directions

1. Preheat the oven to 450°. Toss the kale, potatoes, and onion with olive oil in a large roasting pan. Season with salt and pepper and spread in an even layer.
2. Set the chicken on a cutting board, skin side down. Slice halfway through the joint between the drumsticks and thighs. Season with salt and pepper, sprinkle with the paprika, and set on top of the vegetables.
3. Cover the pan with foil. Roast the chicken in the upper third of the oven for 20 minutes. Remove the foil and roast for 30 minutes until the chicken is cooked and the vegetables are tender. Transfer the chicken to plates and spoon the vegetables alongside. Serve with lemon wedges.

C. Roast Chicken with Salsa Verde and Roasted Lemons



Ingredients

- One whole 4-pound chicken, backbone removed, chicken halved lengthwise.
- 1 cup plus 2 tablespoons extra-virgin olive oil.
- Kosher salt
- Pepper
- 2 lemons halved crosswise.
- 1/4 cup capers, rinsed.
- 4 anchovy fillets in oil, drained.
- 3 garlic cloves, crushed.
- 1/2 cup coarsely chopped arugula.
- 1/2 cup coarsely chopped parsley.
- 1/2 cup coarsely chopped basil.
- 1/2 cup coarsely chopped cilantro.
- 1/4 cup coarsely chopped tarragon.
- 1/4 cup coarsely chopped chives.
- 1/4 cup coarsely chopped sage.

Directions

1. Preheat the oven to 450°. Arrange the chicken skin side up on a rack set over a baking sheet. Rub with 2 tablespoons of the olive oil; season with salt and pepper. Place the lemons cut side down on the rack. Roast the chicken for about 40 minutes, until golden and cooked through. Let rest for 10 minutes.
2. Meanwhile, in a mortar or blender, mash the capers with the anchovies and garlic until a paste forms. Transfer to a medium bowl and whisk in the remaining 1 cup of olive oil. Stir in the herbs, season with salt.
3. Carve the chicken; arrange it on a platter with the lemons. Serve with salsa Verde.

D. Ginger-Roasted Chicken



Ingredients

- 2 tablespoons unsalted butter, softened.
- 5 garlic cloves, tablespoon.
- 1 tablespoon grated ginger plus 12 thin ginger slices
- Salt and freshly ground pepper
- One 4-pound chicken at room temperature
- 1 onion, quartered.
- 2 serrano chiles, seeded and thinly sliced.
- 1 lime, quartered.
- 1/2 cup chicken stock or low-sodium broth
- 1 tablespoon Asian fish sauce

Directions

1. Preheat the oven to 425° and position a rack in the lower third of the oven. In a bowl, mix the butter with the minced garlic and grated ginger and season with salt and pepper.
2. Pat the chicken dry. Rub half of the butter under the skin and the rest over the chicken, season with salt and pepper.
3. Set the chicken breast-side-up on a rack in a roasting pan. Scatter the onion, garlic cloves, ginger slices, chiles and lime and add 1/2 cup of water. Roast for 30 minutes, until the breast is firm and just beginning to brown in spots. Using tongs, turn the chicken breast-down and roast for 20 minutes longer, until the skin is lightly browned.

4. Using tongs, turn the chicken breast-side-up. Add another 1/2 cup of water. Roast for about 20 minutes longer, until an instant-read thermometer inserted in the inner thigh registers 175° to 180°.
5. Tilt the chicken to drain the cavity juices into the pan; transfer the bird to a cutting board. Remove the rack from the pan and spoon off the fat. Set the pan over high heat. Add the stock and cook, scraping up any browned bits. Stir in the Asian fish sauce. Carve the chicken and pass the chunky jus at the table.

E. Moroccan Roasted Chicken



Ingredients

- 2 tablespoons unsalted butter, softened.
- 1 teaspoon ground cumin
- 1 teaspoon ground coriander
- 1 teaspoon sweet paprika
- 1/4 teaspoon cayenne pepper
- 1/4 teaspoon ground cinnamon
- Salt and freshly ground pepper.
- One 4-pound chicken at room temperature
- 1 onion, quartered.
- 4 garlic cloves
- 12 pitted dates
- 12 dried apricots
- 1/2 cup chicken stock or low-sodium broth

Directions

1. Preheat the oven to 425° and position a rack in the lower third of the oven. In a bowl, mix the butter with the cumin, coriander, sweet paprika, cayenne and cinnamon and season with salt and pepper.
2. Pat the chicken dry. Rub half of the spice butter under the skin and the rest over the chicken, season with salt and pepper.
3. Set the chicken breast-side-up on a rack in a roasting pan. Scatter the onion, garlic cloves, dates and dried apricots and add 1/2 cup of water. Roast for 30 minutes, until the breast is firm and just beginning to brown in spots. Using tongs, turn the chicken breast-down and roast for 20 minutes longer, until the skin is lightly browned.
4. Using tongs, turn the chicken breast-side-up. Add another 1/2 cup of water. Roast for about 20 minutes longer, until an instant-read thermometer inserted in the inner thigh registers 175° to 180°.
5. Tilt the chicken to drain the cavity juices into the pan; transfer the bird to a cutting board. Remove the rack from the pan and spoon off the fat. Set the pan over high heat. Add the stock and cook, scraping up any browned bits. Carve the chicken and pass the chunky jus at the table.

F. Tex-Mex Chicken Strips

Ingredients

- 1/2 cup finely crushed corn chips.
- 1/4 cup panko breadcrumbs
- 1/4 cup dry breadcrumbs
- 1/4 cup finely shredded Mexican cheese blend.
- 5 teaspoons taco seasoning
- Dash cayenne pepper
- 1/4 cup butter, melted.
- 1 pound chicken tenderloins



Directions

1. Preheat oven to 400°. In a shallow bowl, mix the first 6 ingredients. Place butter in a separate shallow bowl. Dip chicken in butter, then roll in crumb mixture to coat; press to adhere. Place chicken in a foil-lined 15x10x1-inch baking pan. Bake until a thermometer inserted into the chicken reads 165°, about 15 minutes, turning halfway through the cooking time.

G. Flavourful Chicken Fajitas

Ingredients

- 4 tablespoons of canola oil, divided.
- 2 tablespoons lemon juice
- 1-1/2 teaspoons seasoned salt
- 1-1/2 teaspoons dried oregano
- 1-1/2 teaspoons ground cumin
- 1 teaspoon garlic powder
- 1/2 teaspoon chili powder
- 1/2 teaspoon paprika
- 1/2 teaspoon crushed red pepper flakes, optional.
- 1-1/2 pounds boneless skinless chicken breasts cut into thin strips.
- 1/2 medium sweet red pepper, julienned.
- 1/2 medium green pepper, julienned.
- 4 green onions thinly sliced.
- 1/2 cup chopped onion.
- 6 flour tortillas (8 inches), warmed.
- Optional: Shredded cheddar cheese, taco sauce, salsa, guacamole, sliced red onions, and sour cream

Directions

1. In a large bowl, combine 2 tablespoons of oil, lemon juice, and seasonings; add the chicken. Turn to coat and cover. Refrigerate for 1-4 hours.
2. In a large cast-iron or heavy skillet, sauté peppers and onions in remaining oil until crisp-tender. Remove and keep warm.
3. Drain the chicken, discarding the marinade. In the same skillet, cook chicken over medium-high heat until no longer pink, 5-6 minutes. Return pepper mixture to pan, heat through.
4. Spoon filling down the centre of tortillas; fold in half. Add toppings as desired, and fold in half.

H. Breaded Ranch Chicken

Ingredients

- 1/4 cup unsalted butter, melted.
- 3/4 cup crushed cornflakes.
- 3/4 cup grated Parmesan cheese.
- 1 envelope of ranch salad dressing mix
- 8 boneless skinless chicken breast halves (4 ounces each)



Directions

1. Preheat oven to 350°. Place butter in a shallow bowl. Combine the cornflakes, cheese, and salad dressing mix in another shallow bowl. Dip chicken in butter, then roll in cornflake mixture to coat.
2. Place in a greased 13x9-in. baking dish. Bake, uncovered, until a thermometer reads 165°, about 45 minutes.

Spiced Fried chicken.

- Cuts of chicken
- Mixed spice
- Egg
- Milk
- Salt
- Season flour
- Oil for frying

Directions

1. Rub the chicken with mixed spice.
2. Soak the chicken cut in milk and egg mix.
3. Transfer the chicken cut to the Season flour and Shak until coated.
4. In a large skillet, heat oil over medium-high heat fry until it becomes crispy.

5. Food preservation and packaging

- 1- Product containment
- 2- Preservation and quality
- 3- Presentation and convenience
- 4- Protection during Distribution and Processing
- 5- Provide storage history

1. Product Containment

- The first function of packaging is its capability of containment.

The primary purposes of packaging are containment and protection.

- It is self-explanatory; liquids, semi-liquids, powders, and bulk solids cannot be marketed without suitable containers.
- Containment refers to holding goods in a form suitable for transport, whereas protection refers to safekeeping goods in a way that prevents significant quality deterioration.

2. Preservation by Maintaining Quality

- The second function of packaging is to control the local environmental conditions to enhance storage life and safety.

The main purpose of food packaging is to protect the product from its surroundings and maintain the quality of the food throughout the product's shelf life.

- Three factors control product shelf life:

1-product characteristics,

2- properties,

3- storage and distribution conditions of individual packages.

Reactions causing food deterioration include enzymatic, chemical, physical, and microbiological changes. Additional problems include insects, pests, and rodents.

Nutritional Quality

- Packaging affects the nutritional quality of foods. Examples include peroxidation of polyunsaturated fats and destructive oxidation of nutrients such as ascorbic acid,

Fatty acid peroxides are well established as causing health problems.

- As antioxidative nutrients such as vitamins C and E are lost.

Carotenoid pigments can also be oxidized, leading to loss of color as well as loss of their beneficial effects on the body.

- Lipid hydroperoxides can also result in the formation of aldehydes and other compounds with off-flavours. In addition to light barriers, using a UV absorber in the packaging material can decrease lipid oxidation.
- Among all other packaging functions, protecting foodstuffs against light plays a key role, particularly during storage, transport, and sales display.

Barrier Properties

- To achieve the best from packaging, it is important to know product characteristics, properties of individual packages, storage, and distribution conditions.
- Barrier properties include permeability of gases (such as O₂, CO₂, N₂, C₂H₄), water vapor, aromas, and light. These are vital factors for maintaining the quality of foods.
- packaging materials cannot be chosen solely on the basis of their barrier properties.
- Factors such as processability, mechanical properties, chemical resistance, and interaction with product and Environmental factors, such as temperature, relative humidity, and light intensity, must also be considered.
- Various active substances can be incorporated into the packaging material to improve its functionality and give it new or extra functions.

- Such **Active packaging technologies** and **Antimicrobial Packaging** and *Edible Film* are designed to extend the shelf life of foods, while maintaining their nutritional quality and safety.

3. Presentation and Convenience

- Food labels are intended by law to provide the information that consumers need to be able to make the necessary decisions about those purchases of food.
- It is important to display the product in an attractive manner to the potential buyer.
- Cleverly designed and beautifully produced packaging can help sell a product, an essential ingredient of an effective marketing campaign. Packaging helps distinguish products on the shelf, which is especially important when marketing low-fat or nutritional products.
- For a package to be effective, it must present the product well and should do its own publicity.
- Changes in society, such as diminishing population patterns, increasing average age, smaller families, more leisure time, and improvements in the quality of life, standard of living, and general level of education, may also demand specific packaging functions.
- Eating styles, such as ready-to-eat meals, snacks, and microwaveable ready meals, have changed over the years, which needs innovation in packaging.
- Packaging should meet the future demand of meeting the eating style of society.
- For children, the packaging might represent innovation or fun.

4. Protection during Distribution and Processing

- The fourth function is to protect the product during transit to the consumer. Packaging is part of the distribution process necessary to deliver goods to the consumer and facilitate handling and transportation.
- It also has affected international trade by making shipping of food products possible, allowing seasonal products to be more accessible out of season.
- Packaging can handle better when there are challenges in the food distribution chain, such as heat, humidity, or dew.
- Knowing the distribution challenges and designing packages to suit them is important.
- A prepacked product should be able to stand the severity or type of process conditions, such as flexible packaging during canning, microwaveable foods, and openable and reportable foods.
- Irradiated foods are usually prepacked prior to treatment by ionizing radiation.
- Protective packaging is a term applied to packaging primarily designed to protect the goods rather than for appearance or presentation.

5. Provide Storage History

- Time-temperature indicator (TTI) is effective for predicting microbial concentrations and other parameters of food quality during shipping and storage.
- It helps in ensuring proper handling and provides a gauge of product quality for sensitive products in which temperature control is imperative to efficacy and safety..
- TTI could be used in chilled foods to identify the temperature abuse during storage and distribution.
- TTIs are tags that can be applied to individual packages or shipping cartons to visually indicate whether a product has been exposed to time and temperature conditions that adversely affect the product quality.
- According to the response mechanisms, TTIs can be divided into three groups: (i) biological, (ii) chemical, and (iii) physical systems
- There are two issues to be considered:
- One is the economics .
- The other issue is knowledge of the food product.

Ideal Packaging

- Zero toxicity
- High product visibility
- Strong marketing appeal
- Ability of moisture and gas control
- Stable performance over a large temperature range
- Low cost and availability
- Suitable mechanical strength (i.e., strength in compression, wear, and puncture characteristics)
- Easy machine handling and suitable friction coefficient
- Closure characteristics, such as opening, sealing and resealing, pouring
- Ability to include proper labeling
- Resistance of migration or leaching from package
- Protection from loss of flavor and odor
- Controlled transmission of required or unwanted gases

Packaging categories

1- primary packaging

Primary packaging surrounds the product and features.

labelling.

2. secondary packaging

ease of manual movement of products.



3- Transit packaging wrapping used to bundle the boxes or crates for transport and distribution.



4. Transit-packaged products are placed in shipping containers for long-distance transportation and distribution.

Selecting the right material

Material selection is based on:

- Technical properties (strength, flexibility, etc.)
- Fitness for a purpose (moisture barrier, cushioning, etc.)
- availability
- manufacturing capability
- cost
- environmental impact
- regulations

Types of Packaging Materials

- From skins, leaves, and bark, tremendous progress has been made in the development of diversified packaging materials and in the packaging equipment.
- In general, packaging materials may be grouped into

- 1- rigid (wood, glass, metals, and hard plastics)
- 2-flexible structures. (Plastic film, foil, paper, and textiles)