

Getting Started



Food hygiene and kitchen safety

Did you know that food is a direct cause of illness for many Australians? It is really important that you understand the rules for food safety and hygiene before getting started in the kitchen.

The dos and don'ts of cooking

| DO | DON'T |
|--|---|
| Do tie back your hair and wash your hands before cooking. | Don't cook if you are sick. |
| Do wear an apron and closed shoes. | Don't wear dirty clothes or open-toed shoes. |
| Do cover any cuts with a band-aid and/or wear a glove. | Don't cook if you are badly injured. If you need a band-aid you should use a coloured one so that it stands out if it accidentally gets into the food. |
| Do be cautious and handle knives with care. Curl your fingers over and lean the knife against your fingers when cutting. | Don't carry a knife the wrong way or throw it in the sink to wash. |
| Do choose the correctly sized stovetop burner for the saucepan you are using. | Don't have pot handles pointing off the stovetop; always face them inwards to avoid an accident. |
| Do avoid cross-contamination. | Don't cut raw and cooked food on the same chopping board. |
| Do pay attention when working with hot oil. Make sure it doesn't get too hot and start to smoke. | Don't leave your stovetop unattended when cooking. |
| Do open the oven door fully and use oven mitts when removing food items. | Don't use your tea towel or dishcloth as an oven mitt. If they are wet they will conduct the heat and burn your hands. |
| Do keep hot food hot and cold food cold. | Don't allow food to sit in the temperature danger zone. |
| Do ensure you rinse your dishes, then wash them in hot soapy water, drying carefully before putting them away. |  Don't use dirty dishwater to wash your dishes. Change your water if you need to. |
| Do check that all electrical equipment is in good working order before using. | Don't use electrical equipment near the sink and throw it away if the power cord is frayed. |
| Do clean up any spills immediately. | Don't move around the room too much. Place a bin bowl on your bench and try to reduce your movement as much as possible. |

Be aware! Food poisoning bacteria can grow and multiply very quickly given the right conditions.

Over five million cases of food poisoning could be avoided in Australia each year if food handlers followed three simple steps:

- 1 **Control** temperature.
- 2 **Kill** harmful bacteria.
- 3 **Prevent** cross-contamination.





Essential kitchen tools and equipment

When cooking it is very important to choose the right tool or piece of equipment.

The correct tool or piece of equipment ensures that the food you prepare will be of the best possible quality. The following pages show you the tools and equipment that you will need to make the recipes within this workbook.



Balloon whisk



Bamboo steamer



Chef's knife



Colander



Egg lifter



Electric beater



Frying pan



Grater



Measuring cups



Measuring jug

Cake pans



Coloured chopping boards



Food processor



Ladle



Measuring spoons



Meat mallet



Metal bowl



Metal spoon



Microwave oven



Pallet knife



Pasta machine



Pastry brush



Peeler



Plastic scraper



Rolling pin



Scales



Set of saucepans



Sifter



Skewers



Slotted spoon



Strainer



Sushi rolling mat



Tongs



Vegetable knife



Wok



Wooden spoon



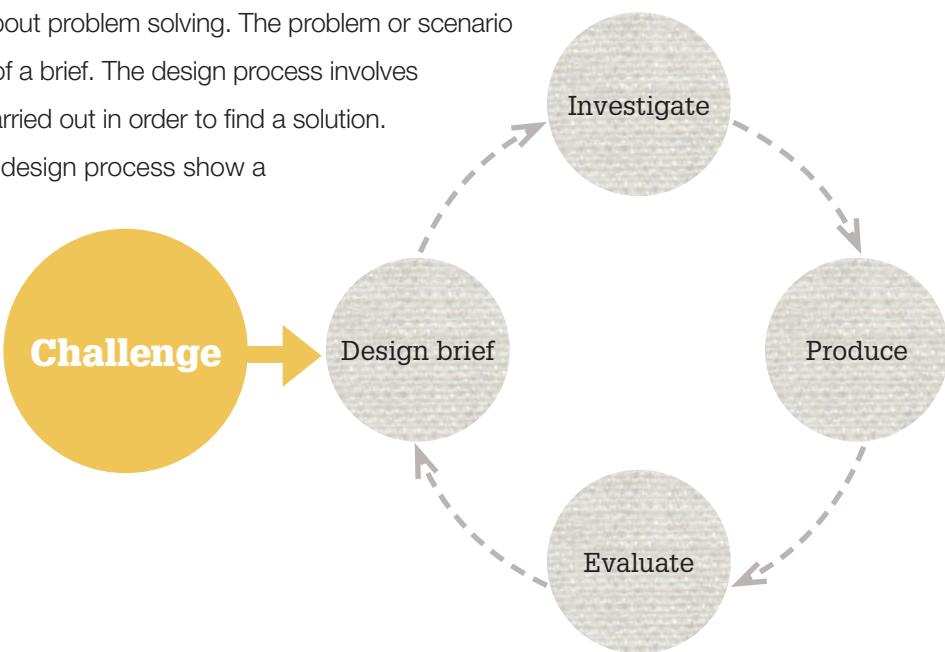
Zester



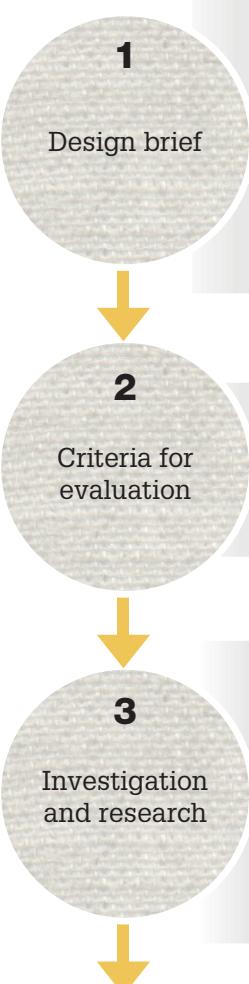
The design process

The design process is all about problem solving. The problem or scenario is often written in the form of a brief. The design process involves a series of steps that are carried out in order to find a solution.

The main stages of the design process show a circular process:



The stages of the design process



The design brief discusses the problem to be solved. It contains all of the information that needs to be considered during the design process, along with constraints and considerations, and gives you an aim for the required product. It is important that the constraints and considerations are identified in the design brief to ensure the needs of the brief can be met. Often a brief will contain information regarding who, what, where, when and why.

Questions are developed from the design brief that address the constraints and considerations of the brief. These questions are used during the evaluation process to ensure that the problem as set in the brief has been met.

The specifications set out in the design brief must be considered. Research is carried out to explore possible ways the brief could be met and to build your knowledge in order to meet the needs of the brief. Research should consist of both primary and secondary sources. Other design elements must also be investigated and considered, such as flavour, colour, aroma, texture and price. Possible solutions to the brief start to surface.



The stages of the design process (continued)

A number of different options are considered in response to the investigation and research that was carried out. A final selection needs to be made and justified against the brief. The most suitable option is that which meets the needs set out in the brief.

The product or food item is produced. Often a production and time plan sequence will be prepared and followed to ensure a quality outcome will be produced.

The final product or food item is evaluated against the previously set criteria. The processes used for the production can be analysed, along with an assessment of your own performance. This stage is critical to ensure the problem set in the brief has been solved and that all constraints and considerations have been met.



Methods of cooking

We cook foods to improve their appearance, taste and digestibility. When cooking, heat can be applied in three different ways: conduction, convection and radiation.

| Method of heat transfer | How is the heat created? | How is the heat transferred? | Picture it | Example |
|-------------------------|---|--|--|---|
| Conduction | The transfer of heat from one molecule to the next by contact with a hot material, for example, a frying pan. | Heat is transferred from one molecule to the next by contact with a hot material; for example, a frying pan. |  | Have you ever burned yourself on a hot pan because you touched it? This is a great example of direct conduction. Heat has been transferred through matter – your skin! |
| Convection | The heat is created via the movement of hot particles from one particle to the other. The heat moves with the liquid that surrounds the food. As liquids or gases are warmed, they become less dense and rise. Cooler, denser liquids or gases then sink down towards the heat and create convection currents. | The transfer of heat is by the movement of the warmed foods. |  | Convection heat is used in the cooking of pasta in a saucepan of boiling water. Think about how the pasta moves around in the saucepan as the heat moves with the liquid that surrounds the food. |
| Radiation | Heat is transferred by waves of energy that vibrate at a high frequency and travel rapidly through space. When the heat and light waves are absorbed by food, only the surface of the food is heated. This is due to the fact that the heat and light waves cannot penetrate the food. The rest of the food is heated via conduction. In order for food to be heated, radiation and conduction are necessary. | The transfer of heat directly from the heat source, such as an element, to the food. |  | A great example of this is the cooking of a piece of steak or melting cheese underneath a grill. |

Wet method of cooking

This cooking method uses liquid (water or stock) to transfer heat and includes boiling, poaching, steaming and stewing. Large quantities of liquid must be added to some foods, while for others small amounts or even steam created by the liquid is enough to cook the food. This cooking method is often also referred to as the moist method.

Boiling

- Boiling is the cooking of a food in a boiling liquid, commonly water or stock. The liquid boils when its temperature is raised to what is commonly termed as boiling point.
- When the liquid heats, tiny bubbles appear on the bottom of the saucepan, which then rise to the surface. Gradually the bubbles increase in size until large ones are formed; these then rise rapidly to the surface and break. This causes the constant agitation of the liquid.
- Foods that suit this method are pasta, rice, fresh vegetables and dried vegetables.

Poaching

- Poaching involves gently simmering food in liquid (water, stock and wine). Fragile foods like eggs are often poached as this is a 'gentle' method of cooking.
- When poaching food it is important to keep the heat low and to keep the poaching time to a bare minimum. This prevents the food from drying out or falling apart, and preserves the flavour of the food.

Steaming

- This involves the cooking of food by application of steam. It requires food being put into a steamer. As the water underneath the steamer boils, it evaporates into steam. The steam rises and heats and cooks the food.

Stewing

- This method of cooking cooks the food in water or another form of liquid at a temperature below boiling point. The liquid that is used to cook the food is generally simmering in a pot on the stove top or cooked in a covered casserole in the oven.
- Stewing is suitable for tough cuts of meat as these can be made tender and tasty by long, low temperature cooking.

Dry method of cooking

This method of cooking involves the food being exposed to a heat source or placed in a closed oven and subjected to hot air. Dry methods include roasting, baking, grilling and frying, and foods are cooked to develop crispness, colour and flavour. These methods do not tenderise foods like wet methods, so it is important to choose carefully the foods being cooked this way. Thin, tender and smaller items should be grilled or fried, and larger ones baked or roasted.

Roasting

- Roasting uses dry heat from an open fire, oven or other heat source to cook foods. It is generally carried out in an oven where the food is surrounded by heat and the food is coated in fat or oil.

- This method causes the caramelisation of the surface of the food, which enhances its appearance and flavour.
- Larger pieces of meat and vegetables suit this method of cooking.

Baking

- When food is baked, hot air is created and circulated. These high temperatures are generally created by an oven, but hot ash or hot stones can also be used to bake foods.
- The dry heat converts the water content of food into steam, which bakes the food.
- Cakes, biscuits and apples suit this method of cooking.

Grilling

- Grilling is a very quick method of cooking. The food usually has to be turned once while it is cooking. This method of cooking is generally carried out underneath an electric or gas grill. Food can also be cooked by glowing charcoals or an open fire – this is referred to as barbecuing.
- Foods that are suitable for grilling are those that are tender and require quick cooking. High temperatures are used to cook foods and the food is positioned close to the heat source.
- Meats suit this method of cooking.

Frying

- When food is fried, it is cooked in fats, oil, butter or lard. Food is either totally or partially immersed into fat and the food is cooked by coming into contact with the hot fat: the heating of the food is rapid as the heat is conducted from the hot fat into the food.
- The temperature of the fat or oil is extremely important as it ensures that the outside of the food is sealed in order to prevent the food soaking up the heated oil like a sponge.
- **Deep frying** involves immersing food totally in hot oil. Foods that are deep fried often have an outside crumb or batter; this helps to protect the food from the high temperature of the fat.
- **Shallow frying** or pan frying involves the cooking of food in a shallow pan. A small quantity of preheated fat or oil is used. Shallow frying is a quick method of cooking that is only suitable for tender cuts of meat. This method of frying results in a final cooked product that has a good colour and has lost minimal amounts of nutrients.
- **Stir-frying** involves a high heat with very little oil. Food items are in small and evenly sized pieces. Food is fried in small quantities and then combined at the end of the cooking process.

Microwaving

We keep microwaving as a separate cooking method because no heat is transferred during cooking. The microwave is useful for cooking food as it is quicker than using an oven and has a wide range of applications such as reheating; however, the microwave does also have some limitations. The microwave does not colour food (that is, dextrinisation), nor can it create the light crisp texture of pastry. When working with recipes it is important to understand what your desired outcome is to ensure the method you have chosen is appropriate.

Functional properties of food



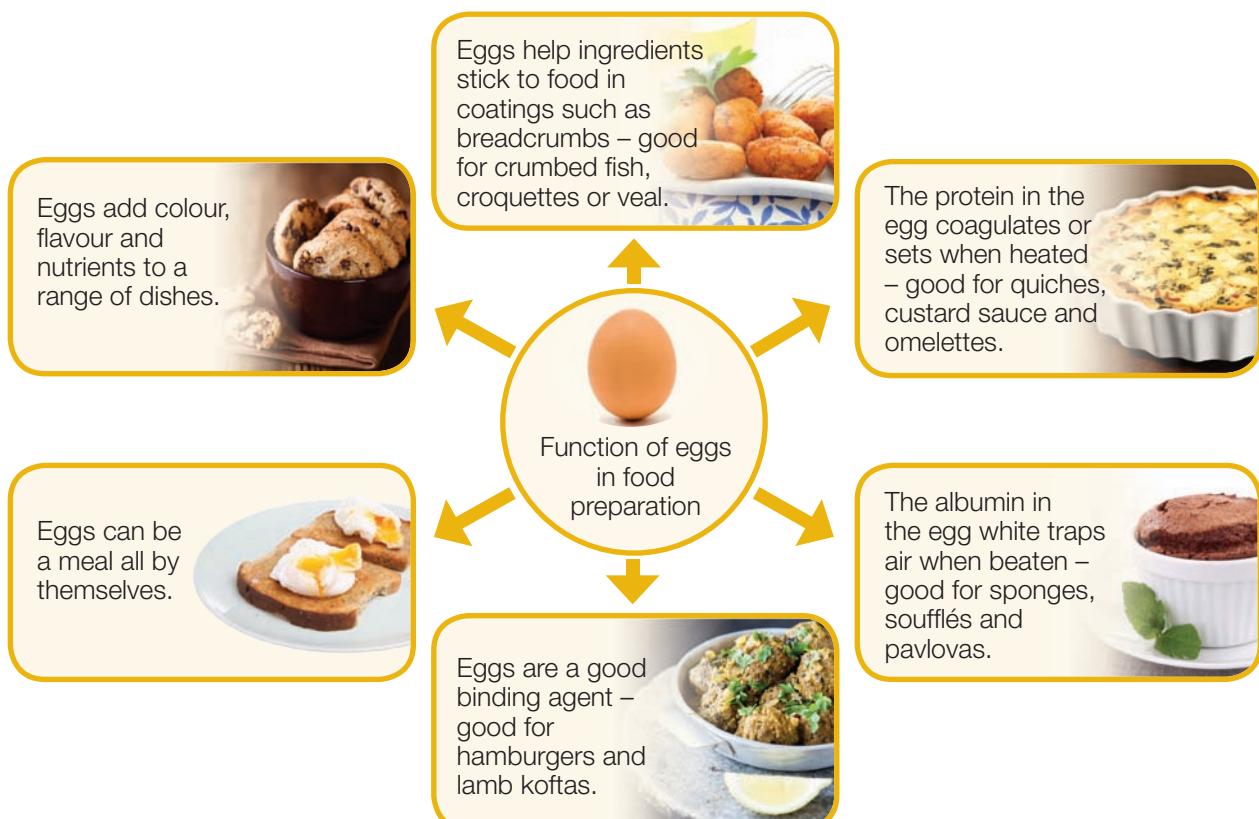
Cooking is a science, and the way the ingredients all work together and the roles they play can be termed kitchen chemistry. The physical and chemical properties of ingredients all have an impact on food preparation and food processing. For example, if you forgot to add the flour when baking a cake, then your cake wouldn't have any volume or structure. Nor would it change to a golden brown colour, as it is the starch in flour, when exposed to dry heat such as baking, that changes to a golden brown colour as a result of dextrinisation. So the next time you are cooking, pay attention to your ingredients and explore their role in your final product.

| Natural food component | Functional properties | Food sources |
|------------------------|--|--|
| Starch | Gelatinisation: when starch is added to water and heated, thickening occurs. The starch swells and absorbs the water (for example, custard). Dextrinisation: this occurs when food is baked and the starch turns brown (for example, the golden colour of bread). Volume and structure: in a cake the starch absorbs the moisture; cooking then sets the starch so it holds its shape and provides structure (for example, cakes). | <ul style="list-style-type: none">• Cereals• Some starchy vegetables (for example, potatoes) |
| Sugar | Sweetness: sugar provides the sweet taste in foods. Caramelisation: when sugar is heated it melts and goes brown (for example, toffee). It also occurs when dry heat is applied to fruit and vegetables that have a high sugar content (for example, onions). Preservation: the use of high amounts of sugar prevents the growth of micro-organisms. Aeration: the process of creaming butter and sugar helps to trap air and stabilise beaten egg (for example, cake making). Maillard reaction: when dry heat is applied to sugar or starch and protein, a reaction producing a golden brown colour occurs. | <ul style="list-style-type: none">• Sugar• Fruit with a high sugar content• Vegetables with a high sugar content |
| Fats and oils | Moisture: makes food moist (for example, chocolate mud cake). Texture: fat surrounds the gluten in flour to keep the texture 'short' or crumbly (for example, pastry). Aeration: beating butter with sugar traps air that expands during cooking (for example, cake making). Emulsification: egg yolks contain emulsifiers that help to disperse the droplets of two liquids into one (for example, mayonnaise). Flavour: fat and oil flavours provide a richness and a coating to the roof of your mouth (for example, chocolate). Preserving qualities: the fat in products also improves the keeping qualities of a food item (for example, chocolate mud cake). | <ul style="list-style-type: none">• Butter• Oil• Lard• Egg yolk• Dairy products |

| | | |
|----------------|---|---|
| Protein | <p>Aeration: egg white traps air when beaten providing aeration (for example, soufflé).</p> <p>Denaturation: the structure of the protein has a permanent change. This occurs through the application of mechanical action, heat or the addition of acids (for example, cooking fish).</p> <p>Coagulation: the structure of protein changes from a liquid to a solid mass (for example, egg white).</p> <p>Maillard reaction: when dry heat is applied to sugar or starch and protein, a reaction producing a golden brown colour occurs.</p> | <ul style="list-style-type: none"> • Meat • Egg |
| Alkali | <p>Raising agent: agents react in the presence of moisture and give off CO_2 gas, which expands the surrounding mixture. The mixture sets around the trapped air and the product holds its shape (for example, bread).</p> | <ul style="list-style-type: none"> • Bicarbonate of soda |
| Acid | <p>Preservation: high amounts of acid prevent the growth of micro-organisms (for example, pickled onions).</p> <p>Tenderisation: this softens the connective tissue of meat, making it more tender to eat (for example, marinade).</p> <p>Prevention of browning: acid prevents enzymatic browning on cut fruit (for example, apples).</p> <p>Jam setting: when making jam, acid helps the extraction of pectin from the fruit, helping the jam to set.</p> | <ul style="list-style-type: none"> • Lemon • Pineapple • Vinegar |
| Enzymes | <p>Browning: when exposed to oxygen, enzymes are responsible for browning (for example, apples).</p> <p>Ripening: enzymes also promote ripening in fruits and vegetables.</p> | <ul style="list-style-type: none"> • Fruits and vegetables |

Eggs

The egg is the most functional of all available ingredients and plays a vital role in many recipes.



Using complex processes



Some recipes are easier to cook than others. Many recipes involve the producer making a number of decisions along the way that will have a direct impact on the final outcome of the product. The decisions being made may relate not only to the ingredients in the recipe, but also to the processes that need to be carried out or the equipment that needs to be used. These are described as complex processes. Working with complex process recipes allows you to demonstrate your knowledge and skills. But it is important to read recipes carefully first to ensure you understand the times that critical decisions need to be made to ensure you produce a high-quality final product.

What decisions do I make?

Decisions include:

- the type and quality of ingredients
- understanding the functional properties of ingredients
- selecting and using key tools and equipment
- choosing the correct cooking method
- managing the preparation and cooking processes, including cooking time and temperature
- knowing when your product is ready.

Complex processes

- pastry making (shortcrust, puff, rough and choux)
- confectionery making (nougat, Turkish delight, toffee, praline and spun sugar)
- jam, jelly and marmalade making
- fruit curds and fruit butter making
- preserve, chutney and pickle making
- yeast making (bread, doughnuts and pizza dough)
- cake making (creaming and sponge making)
- biscuit making
- mayonnaise and hollandaise making (traditional egg-and-oil-based emulsion)
- ice cream making (custard-based)
- sorbet or semifreddo making
- pasta making (handmade with or without using pasta machine)
- fruit bottling
- meringue or pavlova making
- risotto making
- sushi making

- soufflé making
- working with gelatine
- deep frying
- dried fruit leather making

Have a think about the decisions that you need to make during the making of cupcakes.

Cupcakes with lemon curd

INGREDIENTS

CUPCAKE



LEMON CURD



Creaming the butter and sugar until correct consistency; should be a light colour and fluffy texture

Folding in liquid and dry ingredients correctly

METHOD

CUPCAKE

- 1 Preheat oven to 180°C.
- 2 Line two muffin trays with patty pan cases.
- 3 Cream butter and sugar until light and fluffy.
- 4 Add eggs and vanilla essence. Mix well.
- 5 Add flour and milk alternately, about a third of each at a time. Stir carefully to completely combine. Repeat until all flour and milk have been combined.
- 6 Place mixture into pans and bake for 15–20 minutes until golden brown.
- 7 Allow cakes to cool in the muffin tray for 3 minutes then move on to a cooling rack to continue cooling.
- 8 When cool, use a vegetable knife to remove a disc of cake from the top of each cake. Cut each disc in half.
- 9 Place two teaspoons of lemon curd in the disc hollow.
- 10 Place disc halves into curd to resemble butterfly wings. Dust with icing sugar

Preparing oven and adjusting shelves for cooking

Preparing cake tin/muffin tray

Adding eggs, judging the rate of addition and correct consistency of mixture

Ensuring correct baking temperature and oven placement; judging when your cakes are cooked