Key terms

**Bacteria** are single-cell microorganisms that can cause food poisoning when they are consumed live in food, or through the toxins they produce once ingested.

The **best-before date** is the date until which food remains fully marketable. After this date, the food may still be perfectly satisfactory.

**Cross-contamination** of food involves the transfer of harmful bacteria from uncooked or raw food to food that has already been cooked or prepared.

**Danger Zone** is the temperature range (5°C to 60°C) in which most bacteria will grow, provided they have enough food and moisture.

**Enzymes** are substances found naturally in food which are responsible for food spoilage. They do not cause food poisoning, but are natural chemicals that cause food to ripen and age.

The **'use-by' date** is the date before which a food should be consumed for health and safety reasons.

**Yeast cells** are micro-organisms that reproduce by a process called 'budding'; they cause food spoilage in foods such as fruit juices and vinegar products.
Food safety in Australia

Contamination of the food supply is one of the major health concerns that face all communities throughout the world. Australia has a well-deserved reputation for having an extremely safe food supply; however, a significant number of cases of food poisoning still occur. Approximately 14000 cases of food poisoning occur in Australia every day. On an annual basis, this amounts to about five million cases each year, which costs the Australian community in excess of $3 billion. These costs include both personal and industry expenses, such as medical expenses, absenteeism from work, lost wages, personal suffering, lost productivity, product recall and litigation.

Personal hygiene

One of the most important principles of safe food handling is personal hygiene. Personal cleanliness and behaviour are critical aspects of safe food handling, as this is often the main cause of food contamination. Bacteria are present on skin, in hair and on clothing and jewellery, and can easily spread to food when it is being prepared.

Hand washing and drying

To minimise the risk of food poisoning, it is essential to wash your hands regularly while preparing food and especially in the following situations:

- Visiting the toilet
- Handling raw food
- Combing or touching your hair
- Blowing your nose
- Smoking
- Handling rubbish
- Handling pets
- Coughing or sneezing

Situations when hands should be washed: [ ] [ ]

Personal cleanliness rules for safe food handling

- Do not eat, or chew gum, while preparing food.
- Wash hands before handling food.
- Do not sneeze or cough over food.
- Keep nails short and clean. Do not wear nail polish or nail extensions when preparing food.
- Do not smoke while preparing food.
- Do not wear rings or any other jewellery.
- Tie back hair or cover with a hair net.
- Use a clean teaspoon to taste food and do not 'double dip' or lick your fingers.
- Wear clean, protective clothing over everyday clothes.
- Cover cuts with a clean, waterproof covering.

2 Food Solutions Units 1 & 2
The best method of thoroughly washing your hands is to generously soap your palms, between each of the fingers, under the fingernails and on the back of the wrists. After a gentle scrub, rinse under warm water and dry thoroughly with a paper towel, then finish drying with a hot-air dryer.

Activity 1.1

Food safety flyer

Food Safety Victoria is planning a new food safety awareness program. A key part of the program is the production of a series of flyers aimed at increasing awareness in the general public of the importance of personal hygiene in food safety.

Working in small teams, use a computer to prepare a flyer that includes eight key points linked to personal hygiene which could be used by Food Safety Victoria in their new food safety awareness program.

Food spoilage and food poisoning

Before we can develop strategies to avoid food spoilage and food poisoning, it is important to understand what causes food to spoil or become poisonous.

First, it is essential to understand the difference between ‘food spoilage’ and ‘food poisoning’. Food may have deteriorated or be ‘spoiled’, but it may not be poisonous. For example, a piece of fruit may be bruised so that it doesn’t look very good, and it may not have a pleasant flavour, but it won’t make you sick if you eat it. On the other hand, food that contains food-poisoning bacteria, and therefore could cause food poisoning, may not necessarily look or taste ‘spoiled’, but could cause serious physical harm.

Food spoilage

Food spoilage is the deterioration in the quality or sensory properties of the food such as its texture, flavour or aroma. This means it is usually unpleasant to eat. Some common examples of food spoilage...
include milk that has gone 'off' and therefore has a sour taste and a curdled texture; oranges or bread that have become mouldy; or biscuits that have lost their crisp texture and become soft. However, while the food may be less pleasant to eat, it will not generally cause any physical harm if consumed. Food spoilage is generally caused by the action of yeasts, moulds and enzymes.

**Yeasts**

Wild yeast can cause food spoilage in foods such as fruit juices and vinegar products. The yeasts produce bubbles on the surface of the liquid and also give off a strong 'yeasty' odour and taste. The yeast cells reproduce by a process called 'budding'. In this process, a small bud appears on the side of the mother cell. When the daughter cell reaches half the size of the mother cell, it separates from the mother cell and grows to its full size before reproducing again.

**Moulds**

Moulds are a form of fungi. They reproduce by forming spores, particularly on foods such as bread, cheese and citrus fruits. They appear as a dark-coloured fuzzy mass on the surface of the food. They are carried in the air and form like seeds on a flower head. Some moulds found in grains and nuts produce harmful toxins, which can be extremely dangerous if consumed. Most moulds are destroyed if they are held at a temperature above 60°C for 10 minutes. However, some moulds have an important role in the production of blue-vein cheeses.

**Bacterial food poisoning**

<table>
<thead>
<tr>
<th>Food-poisoning agent</th>
<th>How food is contaminated</th>
<th>Food sources of contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salmonella</em></td>
<td><em>Salmonella</em> causes infection when food that contains the live bacteria is eaten. <em>Salmonella</em> is responsible for approximately 70 per cent of all food-poisoning cases. It can be fatal in the elderly, sick and very young.</td>
<td>Raw meat, poultry, sausages, dried egg powder</td>
</tr>
<tr>
<td><em>Bacillus cereus</em></td>
<td>These bacteria are normally found in the soil, but form spores and so are easily distributed in air and dust. Spores are resistant to high temperatures and are protected by starch such as rice.</td>
<td>Cereals, especially boiled rice and cooked pasta, which have been allowed to cool to room temperature before use</td>
</tr>
<tr>
<td><em>Listeria monocytogenes</em></td>
<td><em>Listeria monocytogenes</em> is able to grow in extreme conditions, including when refrigerated, and can survive the pasteurisation process. It causes the food-borne disease <em>listeriosis</em> and can result in death. It can also lead to miscarriage or stillbirth.</td>
<td>Milk products and soft cheeses such as brie or camembert, pre-prepared salads, pâté, small goods and soft-serve ice-cream</td>
</tr>
</tbody>
</table>

**Enzymes**

Some enzymes found naturally in food are also responsible for food spoilage. The enzymes are natural chemicals that cause food to ripen and age, but do not cause food poisoning. They are involved in the ripening of fruit, causing changes in colour, a process which is particularly evident when bananas ripen. Enzymes are also responsible for converting the starch that is naturally present in fruit to sugar, which causes fruit to soften as it ripens and to taste sweeter. The browning of a cut apple or avocado is the result of the enzymes in action and is often referred to as 'enzymatic browning'. The enzymes react with oxygen, causing a colour change.

**Food poisoning**

Food poisoning is an illness caused by consuming food contaminated by bacteria, chemicals or biological contamination.

**Bacteria**

Food poisoning is usually caused by bacteria. Bacteria are single-cell micro-organisms that can cause food poisoning when they are consumed live in food, or through the toxins they produce once they are ingested. A wide range of bacteria can cause food poisoning—some have only mild effects, including headaches, nausea, vomiting or diarrhoea, while others can be fatal. Typically, the onset of symptoms usually occurs between six and eight hours after eating, but can occur at any time from one hour to eight days after infection, and usually last for two to three days.
Conditions required for the growth of bacteria

Bacteria are living organisms which grow best under specific conditions. To optimise the growth of bacteria, they need certain conditions.

- **Moisture**—Bacteria need moisture to be able to carry out their normal cell functions and then to be able to divide and multiply. In a food preparation area, bacteria can grow in any moist environment, such as on wet dishcloths and damp tea towels, in water left lying in the sink, or in equipment and utensils that have not been dried properly.

- **Temperature control**—Most bacteria will grow provided they have enough food and moisture, and if the temperature is between 5°C and 60°C. This temperature range is called the 'Danger Zone'. Bacteria can be inhibited from growing if they are too cold; that is, if food is kept in the refrigerator—or if they are too hot; that is, if food is cooked and held over 60°C.

- **Time**—Given ideal conditions, one bacterium can reproduce itself by splitting into two and dividing every 20 minutes. This process of division is called 'binary fission'. Therefore, one bacterium can multiply to produce approximately 17 million bacteria within eight hours.

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**Rate of reproduction of bacteria over an eight-hour period**

- 1 bacterium
- 2 after 20 minutes
- 4 after 40 minutes
- 8 after 60 minutes
- 16 after 80 minutes
- 32 after 100 minutes
- 64 after 120 minutes
- 128 after 140 minutes
- 256 after 160 minutes
- 512 after 180 minutes
- 1024 after 200 minutes
- 2048 after 220 minutes
- 4096 after 240 minutes

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**Conditions required for the growth of bacteria**

- Low acid environment
- pH
- Many require oxygen
- A moist, damp environment
- An appropriate food supply
- Sufficient time to grow
- The correct temperature between 5°C and 60°C

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**DANGER ZONE**

- 5°C
- 60°C

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**The Danger Zone**
The 12 Most High Risk Foods

The following foods have been identified as most likely to cause food poisoning:
- Milk
- Soft cheese
- Cream
- Poultry
- Meat
- Fish
- Ice-cream
- Cooked pasta
- Cooked rice
- Coconut
- Gelatine
- Pastries

High-risk foods for food poisoning

- **Food supply**—Bacteria will grow more quickly in some foods. These foods are called ‘high-risk foods’ because they are the foods most likely to cause food poisoning. Foods that are high in protein enable bacteria to grow more quickly, whereas foods that are acidic or are high in fat do not enable food-poisoning bacteria to grow as easily. Foods that have a high concentration of sugar, salt or vinegar also inhibit the growth of disease-causing bacteria. High-risk foods are foods such as milk, soft cheese, cream, meat, fish, poultry, cooked pasta and rice, coconut, gelatine, ice-cream and pastries. Low-risk foods are foods such as margarine, cooking oil, citrus fruit, vinegar, salted fish, jams, confectionery, lemonade and cola drinks.

- **Low-acid environment**—Bacteria require a pH-neutral environment (neither highly acidic, nor highly alkaline), such as protein-based foods, to flourish, and they are less likely to grow in highly acidic foods such as fruit, vinegars, jams and most vegetables.

- **Oxygen supply**—Many bacteria need oxygen for survival and in order to reproduce. Therefore, many food preservation techniques, for example canning, home bottling, dehydration and vacuum packaging, rely on the removal of oxygen to extend the shelf life of the food.

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**Understanding the text**

1. Briefly explain the economic and social costs of food poisoning to the community.
2. Select four of the rules for personal cleanliness in food handling and explain how, in your opinion, each will help to ensure that food is prepared safely.
3. Explain how food spoilage differs from food poisoning.
4. How can yeast cause food to spoil?
5. Compare moulds and enzymes, and explain how they cause food to deteriorate.
6. Why do enzymes cause fruit to soften on ripening?
7. Describe the optimum conditions required for bacteria to grow.
8. Why is it important to keep food below 5°C or above 60°C?
9. What is meant by the term ‘binary fission’?
10. What are high-risk foods and why are they more easily contaminated than acidic foods?

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**Safe food handling practices**

The best way of ensuring that the opportunity for food contamination is minimised is to follow the seven principles of food handling (see the diagram at the top of page 7).

**Avoiding cross-contamination**

One of the most common causes of food poisoning is through the cross-contamination of food. Cross-contamination of food involves the transfer of harmful bacteria from uncooked or raw food to food that has already been cooked or prepared. Cooking kills most of the harmful bacteria present in food. However, if raw food comes into contact with food that has been cooked, bacteria can be transferred to the cooked food.
The seven principles of safe food handling

1. Observe the rules for good personal hygiene.
2. Make sure food is kept out of the Danger Zone for contamination during all stages of preparation, storage, serving and transportation; that is, keep hot food hot and cold food cold.
3. Only purchase food from reputable food suppliers.
4. Make sure you do not work with food while you are ill, even if the illness is mild.
5. Follow and practise safe food hygiene.
6. Keep equipment and premises in a clean and sanitary condition.
7. Prevent contamination of the food supplies, equipment and premises by insects and rodents.

Major risk factors in cross-contamination

- When raw food such as chicken, which is a source of Salmonella bacteria, is cut on a chopping board, and then another food is cut on the same board without washing the board, Salmonella will be deposited in cracks or crevices of the board. It can then be transferred to a high-risk food such as cooked meat. Health authorities have tried to overcome the problem of cross-contamination by introducing of a system of using coloured boards for particular food types in commercial kitchens; for example, white boards for dairy products, red for raw meats and green for fruit and vegetables.
- Bacteria can transfer from one food to another if rinsed in a sink that has not been carefully cleaned between uses.
- ‘Double dipping’ or using a spoon to taste food and then using the same spoon to mix or stir the food allows bacteria present in the mouth to be transferred to the food which is being prepared. Equally dangerous is using one spoon to taste food and then using the same spoon to taste a second product.
- Tea towels are a potential source of cross-contamination. Tea towels should be used to dry dishes, not to wipe chopping boards, hands or benches. Only clean dry tea towels should be used to cover food and then they should be washed again before use.

- When raw ingredients are not separated from cooked ingredients in storage areas there is the potential for cross-contamination. Processed or prepared foods should be stored in sealed containers above raw foods. Raw vegetables that contain spoilage organisms should also be stored separately in refrigerated areas.

**Activity 1.2**

**The principles of safe food handling**

Work in small teams to prepare a training package in the form of an annotated visual display using PowerPoint or an interactive whiteboard to teach a group of new employees in a local fast food outlet the key principles of safe food handling practices.

Focus on:
- personal hygiene
- causes of food spoilage
- cross-contamination.

For each area, identify:
- potential risks for food spoilage or food poisoning
- strategies to address these risks.
Cleanliness of premises

Food contamination can occur through poor cleaning of equipment and utensils and when harmful bacteria is left on surfaces in the food preparation area. Equipment used in the preparation of food should be cleaned when you change from one food type to another, as well as at the end of a food preparation period. Cleaning should be undertaken at a maximum of four-hourly intervals. Remember, it is important to clean as you go!

The principles of cleaning and sanitising apply to all the food preparation areas, including the walls and floors, all fixtures and fittings such as benches, all food preparation equipment and all crockery and cutlery. There are a number of stages in the process.

1 Pre-cleaning—Dismantle equipment or prepare the area ready for cleaning by scraping and rinsing dishes and clearing preparation areas.

2 Cleaning—Use hot water and detergent to wash all grease and food particles from equipment and surfaces.

3 Sanitising—This is the rinsing stage. The cheapest method of sanitising is to use very hot water—above 82°C. The high temperature also helps to dry the equipment more quickly. If a chemical sanitiser is used, make sure the correct strength is applied, at the correct temperature and for the appropriate time.

4 Drying and storing—Provided a sufficiently high heat is used during the sanitising stage, the item should air dry; tea towels are often a point of contamination if they are dirty. Remember to store clean equipment correctly in a clean storage cupboard.

Waste disposal

Another important aspect of maintaining clean premises is to implement an effective waste disposal system. Rubbish placed in bins usually remains at room temperature for extended periods, and during that time bacterial growth is rapid. Make sure that garbage bins have tight-fitting lids and are lined with plastic disposable bags that can be tied and sealed when full. Bins should be emptied outside the food preparation area into a large external bin, at regular intervals. Once the bins have been emptied, they should be cleaned, disinfected and dried before they are returned to the kitchen area. Thorough hand washing is essential after handling rubbish.

Pest control

Pests such as cockroaches, flies, mice and rats can cause severe food poisoning if allowed to contaminate food. When trying to address the issue of pest control, remember the key principles—build them out, starve them out, chase them out.

- **Build them out**—This means that owners of food premises should try to ensure that the premises are well sealed so that pests cannot get in.
- **Starve them out**—To starve pests, you need to make sure that food, including scraps and rubbish, is not left out as a food source for vermin. Good storage and waste control systems will overcome this problem.
- **Chase them out**—If pests are detected, then use baits or contact a pest exterminator.

Clean as you go!

Effective pest control is essential.
Food poisoning kills four

Edited from the Herald Sun
AAP 14 April 2007
FEDERAL and state authorities have launched an investigation after four residents of a Melbourne nursing home died from an outbreak of food poisoning.

Victoria's Department of Human Services confirmed tonight that three men and a woman, aged in their 70s and 80s, had died from food poisoning.

The outbreak was first detected on April 5 at Broughton Hall, a 30-bed Commonwealth-funded nursing home and hostel in Camberwell.

Over the next seven days, 21 residents were affected and all had symptoms of salmonella-related gastroenteritis.

Two people are recovering in hospital, including a 95-year-old woman who is in a stable condition in Box Hill Hospital.

Dr Lester said she was confident the outbreak had now been contained following de-contamination of the nursing home's kitchen.

Food is being brought in for residents with Dr Lester saying no evacuation was necessary.

State and federal government authorities and Victoria's coroner will investigate the deaths.

Victorian government spokeswoman Stacey Hume said the matter was being investigated by the Department of Human Services but the federal government was responsible for issues related to nursing homes.

Analysis

1. What are the main symptoms of Salmonella food poisoning?
2. What foods are usually responsible for the spread of Salmonella bacteria?
3. Why would a food poisoning incident be of major concern in a nursing home?
4. Suggest four poor food handling practices in the kitchen of the nursing home that may have led to the food poisoning incident.
5. List the four steps that the nursing home would have been required to take to decontaminate their kitchen and to retrain staff in safe food handling.

Understanding the text

11. Select three of the seven safe food handling principles and explain why, in your opinion, these are important in minimising food contamination.
12. Explain why chopping boards are seen to be one of the major causes of cross-contamination of food.
13. Describe in detail the two main risk factors in cross-contamination, other than the use of chopping boards.
14. Identify the temperatures at which food that is to be displayed should be kept and the dangers of not following this requirement.
15. Why should food stored in a bain-marie not be stacked higher than the top of the holding tray?
16. List three important rules for serving food hygienically.
17. Draw up a flow chart of the four stages in cleaning and sanitising.
18. List four simple steps for implementing a safe rubbish disposal system.
19. Why is it important to follow the health and safety principles for waste disposal and pest control?
20. Outline the steps the owner of a food outlet could take to ensure their food manufacturing area is safe from pests such as cockroaches, mice and rats.

Storage of food

Date markings

Food Standards Australia New Zealand (FSANZ) regulates the date marking on packaged food. Packaged food products can only be date-marked with one of two forms of date marking—a 'best-before' date or a 'use-by' date. These terms are used for intact packaged food that is stored according to the conditions stated by the manufacturer.

The 'use-by' date indicates the date by which the food should be consumed for health and safety reasons. The 'best-before' date indicates the food will
remain fully marketable up to the given date; after this date, the food may still be perfectly satisfactory.

**Maximising shelf life**

The variety of foods available to consumers today appears to increase almost daily. The freezer and refrigerated sections of supermarkets are filled with a wide variety of products, and the shelves are filled with an endless array of less perishable items. These foods all possess different properties and require specific storage conditions to extend their life. Correct storage will reduce the opportunity for food to be exposed to conditions that will have a detrimental effect on its physical, chemical and sensory properties.

**Storing food in the pantry**

Non-perishable foods, including flour, dried herbs and spices, and canned and dry packaged foods, can be stored in the pantry for extended periods. The pantry should be clean and well ventilated so that the temperature is maintained between 10°C and 20°C. It is also important to make sure that there is a low level of humidity in the pantry so that dry food does not absorb moisture and deteriorate or develop mould. It is important for all dry food to be stored in airtight containers to avoid contamination by insects and pests such as weevils, ants, mice and rats.

Canned food can also be safely stored in the pantry for prolonged periods. However, do not store cans if they are misshapen, swollen or dented, as this can indicate the production of gases through bacterial or chemical reaction. Also, carefully check that the seams and ‘ring pull’ of cans are not broken or damaged as this will allow air and bacteria to enter the can and contaminate the contents. Once opened, any leftover food should be immediately transferred to a clean container and stored in the refrigerator.

All food stored in the pantry should be clearly labelled and include the ‘best-before’ date. Remember to rotate all food stored in the pantry so that food is used on a ‘first in, first out’ system. Finally, never store cleaning materials in the pantry as these may contaminate food.

### Activity 1.4

**Storing food safely in the pantry, refrigerator or freezer**

Another key focus of the Food Safety Victoria food safety awareness program is to increase the level of understanding of the importance of storing food safely.

Use presentation software to develop a brochure suitable for use as a part of a Food Safety Victoria program which highlights the key rules for storing food safely in a pantry, refrigerator and freezer.

**Storing food in the refrigerator**

To ensure the optimum freshness of perishable food, it should be stored in the refrigerator below 5°C. However, to enable the refrigerator to operate at peak efficiency, try to minimise the frequency of opening and closing the door and do not overload the refrigerator.

A few simple rules for storing food in the refrigerator should be followed:

- To avoid cross-contamination of food, separate cooked and raw foods. Do not let drips or scraps from raw food fall onto cooked food.
- Do not stack uncovered containers on top of each other. Place food in containers and cover with plastic wrap.

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**Rose Cottage Restaurant**

**Kitchen noticeboard**

Follow these rules when storing food in the refrigerator

1. Separate raw and cooked food.
2. Don’t stack uncovered food on top of each other.
3. Place food in containers—NOT straight onto shelves.
4. Store meat in containers or wrap.
5. Separate poultry and red meat.
6. Cover cheese and seafood.
7. Cool hot food for 30 minutes before refrigerating.
8. Divide large quantities into small containers for storage.
9. Remember ‘first in, first out’.

Rules for storing food in the refrigerator
• Make sure that food is not placed directly on the shelves, as this can be a means of cross-contamination.

• Store meat in a container or, if purchased from a supermarket, leave it in its original packaging on the plastic food tray.

• Store poultry separately from red meats.

• Firmly cover foods that have a strong odour, such as cheese and seafood, so that these odours are not absorbed into milk or other dairy products.

• Do not place hot food immediately into the refrigerator, as this will affect the holding temperature of other foods. Instead, cool cooked food for 20 to 30 minutes before placing in the refrigerator.

• Separate large quantities of food into smaller batches so that they cool more rapidly and can then be quickly refrigerated.

• As with all other foods, rotate refrigerated products so that food which is ‘first in’ is also ‘first out’.

Cooked food should not be refrozen once defrosted, and if reheated, it must be used immediately or thrown away.

When thawing frozen foods, follow these rules:

• It is best to transfer food to the refrigerator and defrost it overnight.

• Food can be defrosted on the ‘defrost’ cycle of a microwave oven, but must then be cooked immediately or placed in the refrigerator.

• Some foods, such as vegetables, frozen dinners and small cuts of meat, may be cooked in their frozen state. However, it is important to cook them thoroughly and at a relatively high temperature so that they quickly pass through the Danger Zone.

• Food which is defrosted should be used within two days.

Methods of thawing frozen foods that require food to be held in the Danger Zone for extended periods of time should be avoided:

• Do not thaw food by immersing in warm water in a sink.

• Do not leave food to defrost on a bench or sink for an extended period of time, as this allows the growth of food-poisoning bacteria.

• Large cuts of meat and poultry must be thoroughly thawed before cooking. If the centre of the meat or poultry is not defrosted, the temperature will remain in the Danger Zone during cooking, encouraging the growth of food-poisoning micro-organisms.

### Storing frozen food

To store foods for a longer period, they can be frozen and kept below -18°C. Food that is to be frozen must be adequately packaged and sealed to minimise ‘freezer burn’—the build-up of ice crystals on the outside of the food that can cause the food to dry out. When labelling food, it is important to include the date of packaging so that it is easy to check how long the product has been stored.

<table>
<thead>
<tr>
<th>Food</th>
<th>Storage times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooked and leftover food</td>
<td>1 day</td>
</tr>
<tr>
<td>Minced meat</td>
<td>1 day</td>
</tr>
<tr>
<td>Seafood</td>
<td>2 days</td>
</tr>
<tr>
<td>Poultry</td>
<td>2-3 days</td>
</tr>
<tr>
<td>Fresh meat</td>
<td>3 days</td>
</tr>
<tr>
<td>Processed meat</td>
<td>5 days</td>
</tr>
<tr>
<td>Soft cheese</td>
<td>5 days</td>
</tr>
<tr>
<td>Milk</td>
<td>5-7 days</td>
</tr>
<tr>
<td>Vegetables</td>
<td>5-7 days</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>7-10 days</td>
</tr>
<tr>
<td>Hard cheese</td>
<td>Weeks</td>
</tr>
<tr>
<td>Eggs</td>
<td>Up to 4 weeks</td>
</tr>
<tr>
<td>Butter</td>
<td>Up to 2 months</td>
</tr>
<tr>
<td>Margarine</td>
<td>Up to 6 months</td>
</tr>
</tbody>
</table>

Storage times for food in a refrigerator: 0

12 Food Solutions Units 1 & 2
Activity 1.5
Storing refrigerated and frozen food

1. Select ten foods from the list below and identify the most appropriate area of storage in the refrigerator or freezer.

2. Draw up a four-column table with the following headings: Food, Length of storage time, Method of packing and Signs of deterioration. For each of the foods you selected, identify the optimum length of storage time, the best method of packing to enhance storage, and the signs of deterioration you would look for.

Where should these foods be stored?
- bread
- eggs
- orange juice
- minced beef
- lettuce
- baby carrots
- apples
- bok choy
- tomatoes
- potato wedges
- cream
- lamb chops
- ground almonds
- fish fillets
- pies
- oranges
- butter
- parmesan cheese
- pears
- bacon
- sausages
- doughnuts
- sliced ham
- milk
- puff pastry sheets
- mushrooms
- margarine

Using tools and equipment safely

Accidents can happen very easily and the kitchen is an area where serious accidents can potentially occur. Cutting your finger with a knife, a burn from the oven, or slipping and falling on a wet floor are all accidents that can cause discomfort, pain or injury, but they are rarely life-threatening. However, other accidents can have much more severe consequences and an electric shock, fire or even poisoning can be life-threatening. The one rule to remember is that prevention is better than cure.

Focus on the work tasks—keep your mind on the job.
Make sure all equipment is in good order and is serviced regularly, and all knives are kept sharp.
Stay alert—get plenty of sleep so that you are well rested.
Work cooperatively with all members of the team.

Do not use electrical appliances near water.
Unplug all appliances which are not being used and store them safely after use.
Act on safety rules—if you see a problem act on it immediately and don’t leave it for someone else.

Preventing accidents and injury in a food preparation area

Using knives

Knives are used for almost every food preparation task and it is important to use them safety to minimise the risk of an injury.
- Keep your finger tips tucked under while cutting or chopping—this is called the ‘spider position’.
- Keep the knife sharp—sharper knives are safer because they cut through the food more easily.
- Never run your finger along the cutting edge of the knife to test its sharpness.
- Make sure the handle of the knife is clean and dry, not greasy, so that the knife does not slip.
• When passing a knife to someone else, remember to pass the handle of the knife, not the blade.
• If you need to move around the kitchen with a knife, hold it close to the side of your body with the blade pointing down.
• Do not put knives in a sink filled with hot soapy water as you could cut your finger if they cannot be seen.

Carrying a knife in a kitchen safely

Using electrical appliances

Most small appliances are electrically powered, and many have sharp components. Therefore, considerable care is needed to use them safely and hygienically.
• Do not use an electrical appliance near water or a stove.
• Ensure that you have dry hands before plugging in, unplugging or operating an electrical appliance.
• Always ensure that the power is turned off when assembling and cleaning an electrical appliance.
• Check the electrical appliance regularly to make sure the electrical cord has not become frayed.
• Only use microwave-safe plastic wrap or a paper towel to cover food when cooking in a microwave oven; never use aluminium foil as this can cause ‘arching’.

Assemble an electrical appliance with the power turned off.

Using the cook top and oven

Both the cook top and the oven produce a significant amount of heat and can potentially be dangerous if not used safely.

Cook top
• Make sure the saucepan fits the hot plate or burner.
• Adjust the flame so that it does not extend past the base of the saucepan.
• Turn the saucepan handles out of the walkway.
• Lift the lid of the saucepan away from you to allow the steam to escape.

Oven
• Arrange oven racks before turning on oven to preheat.
• Stand to the side when opening the oven door.
• Always open the oven door fully before removing food.
• Always use oven mitts to carry hot food from the oven.
• Close the door gently before moving away from the oven.
What to do if an accident occurs

Burns
- Allow cold water to run over the burn for up to 10 minutes.
- Seek first aid.

Cuts
- Use a clean paper towel to cover the cut, and apply gentle pressure to stop the bleeding.
- Cover with a food-safe band-aid.
- Seek first aid.

Fire
- Place the fire blanket gently over the fire, if possible—throwing it on the fire may spread the fire further.
- Turn off the gas or electricity heat source under the fire and at the main switch.
- If you don’t have a fire blanket or an extinguisher, the best method of putting out a fat fire is to cover it with a large saucepan lid or pour flour or sand onto it.
- Never pour water onto a fat fire, as this will only cause the fire to spread.

Understanding the text

21 Briefly describe two signs to look for to avoid food contamination when purchasing fresh or canned food.
22 List two rules to follow when purchasing frozen food for home.
23 Discuss the main difference between the terms ‘best-before’ date and ‘use-by’ date.
24 Explain why it is important to have a low level of humidity in the pantry.
25 What is meant by the term ‘first in, first out’ in relation to food storage? Why is this an important rule to follow?
26 List three steps you could take to minimise the risk of cross-contamination of food stored in the refrigerator.
27 What is meant by the term ‘freezer burn’, and how can it be avoided?
28 Why is it important to defrost a whole chicken thoroughly before cooking?
29 Explain why it is important to make sure that the saucepan fits the hot plate or burner when using the cook top.
30 Outline the safest method of extinguishing a fire on the cook top safely.

Activity 1.6

Identifying health and safety procedures in a recipe

1 Read the savoury chicken parcel recipe (see page 18).
2 Draw up a three-column table with these headings: Ingredients, Safety and hygiene procedures and Safe use of tools and equipment.
   a In the first column, list the ingredients.
   b In the second column, list the important safety and hygiene procedures it is necessary to implement at each stage of the recipe, including the appropriate storage of ingredients.
   c In the third column, explain the important points to consider in using tools and equipment safely for each stage in the recipe. For information on safe use of tools and equipment, also review the information in Chapter 10, ‘Tools, equipment and gadgets’.