CONTENTS

Sustainable food ........................................................................................................... 3
  How food impacts the environment ................................................................. 3
  Livestock production ......................................................................................... 3
  Water consumption ......................................................................................... 3
  Carbon emissions .............................................................................................. 4
  Chemical farming .............................................................................................. 4
  What can we do? ................................................................................................. 4

Food safety and preparation ................................................................................. 6
  How healthy is your cooking? ............................................................................. 6
  Safe food handling ............................................................................................ 9
  Storing food ...................................................................................................... 10
  Eating outdoors ................................................................................................ 11
  Sharp Shopping ................................................................................................ 11
SUSTAINABLE FOOD

Joshua Appelboom, Consultant, Australian Centre for Corporate Social Responsibility

How food impacts the environment

While you’re probably not yet in control of the weekly supermarket budget, it’s worth knowing a thing or two about how our food impacts the environment. Soon enough, it will be time to make your own decisions about what appears in on the pantry shelves.

And of course, that’s not to say you can’t ask your parents to make some alterations to the shopping list before then!

Have you ever wondered where the food in your supermarket comes from?

There is so much we don’t know about our food when it comes to its environmental profile. Imagine if for each item in the fridge and pantry there was a tag with the following information:

- Origin of food
- Kilometers travelled to supermarket
- Quantity of greenhouse gas emissions during production, transport and processing
- Total water consumed during production and processing
- Quantity and types of pesticides and fertilizers used
- Average amount of item wasted
- If wrapped, time taken for the plastic to break down in landfill

Would it make you question the food coming into the house?

Most Australians, young and old, would be unaware that their greatest contribution to climate change is through the food they eat. Much of the public debate around climate change has focused on fossil fuel consumption, the use of renewables and environmental degradation by industry. Individually we think about driving cars, leaving lights on and overusing the central heating.

We don’t naturally associate our eating habits with climate change because the labels on our food offer only nutritional information and tell us how good we’ll feel after eating. However, our food system has a significant impact on the environment. From farm to fork, our food is caught up in a world of land clearing, emissions intensive farming, heavy water consumption and chemicals that pollute our waterways.

Livestock production

It is widely reported that the food industry’s carbon footprint is most significantly impacted by livestock production. The United Nations Food and Agriculture Organisation estimates that livestock production alone is responsible for 18% of global greenhouse gas emissions. That’s more than the entire transport sector. Emissions mainly come from ruminant methane production and nitrous oxide, which arises from animal waste and fertilized soils.

Worldwatch Institute estimates that even if we completely eliminated fossil fuels, we would still exceed our threshold of 2 degrees warming by 2030, just from raising animals.

Unfortunately, the environmental impact does not stop at the farm gate. Once our meats, fruits and vegetables have been grown, they are often processed, transforming them into the items we recognise on supermarket shelves. Processing plants have significant environmental impacts through water consumption and waste.

Water consumption

Water consumption in food processing has traditionally been high, as water is used as an ingredient, a cleaning source, transport mechanism and equipment sanitizer. Waste water from meat processing, which has a considerable organic load, can strongly pollute the environment and have adverse impacts on freshwater ecology if discharged into rivers without adequate treatment. Chemical waste created during the processing of seafood, dairy and vegetables carries similar dangers.
Carbon emissions

After food is grown and processed, it has to be delivered to us. The average meal travels 1200 km to get to our plates. You can see how the carbon emissions start to stack up. Interestingly, carbon emissions from transport represent only 11% of the carbon footprint on average, with approximately 83% coming from how the food is grown.

Chemical farming

Studies have shown that chemical farming consumes significantly more energy per unit of production than organic farming. Nitrogen based chemical inputs such as synthetic nitrogen fertilizers used in soils produce nitrous oxide, a greenhouse gas with approximately 300 times more global warming potential than carbon dioxide.

What can we do?

So what can you do about this? Here’s five tips for environmentally conscious high school students.

1. Eat less meat
   Individually, the biggest contribution you can make to reduce your carbon footprint is eat less meat. It has been argued that eating less red meat would be a more effective way to curb carbon emissions than giving up driving cars. If you’re someone who eats meat for lunch and dinner every day, just begin by eating one less meat meal a week and see if you can reduce further over time. If you can get your family involved then that’s even better.

2. Minimise food waste
   Wherever possible, reduce food waste. Food waste breaks down in landfill to become a key source of carbon dioxide and methane emissions. Decreasing unnecessary demand for food will have an impact on the amount of food produced to the betterment of the environment. Eat dinner leftovers for lunch at school the next day and don’t be afraid to tell your parents off if they continually buy too much food. There’s a great app called Love Your Leftovers which gives you ideas for how you can transform leftovers into new meals. Another great way to reduce food waste to landfill is by setting up a compost bin.

3. Push for local produce
   Ask your parents to purchase fresh, local and seasonal produce. This helps to combat the emissions produced during transport and storage. Sunday farmers markets are great places to find fresh produce grown locally and you can meet the people who produce your food. The Farmers Markets app from the Victorian Farmers Market Association and ‘Seasons’ app help you locate farmers market near you.

4. Try organic food
   In addition to being better for the environment, organic food has extensive health benefits. Because organic foods are grown in healthy soils, the nutritional content is typically greater, containing more vitamins and minerals. According to a US study, organic farms have more fertile soil, use less energy and lock away more carbon in the soil. They also promote genetic biodiversity, cause less water pollution and reduce soil damage.

5. Ask for your food to have sustainability certifications
   Finally, start requesting that your food enter the house with sustainability certifications. Key labels include MSC (fish) and the Rainforest Alliance (tea, chocolate). There are numerous apps to help you build a list to give to your household shopper. Try Shop Ethical! and Sustainable Seafood Guide.

As our population continues to grow, global pressure on food systems will only intensify. Our generation (I include myself as a young 25 year old!) has to live with this planet longer than anyone else currently alive. Each of us has a role to play to help steer our planet in the direction of sustainability. Let’s begin with how we sustain ourselves.
Student activities:

1. Why is sustainable food production important?
2. Outline the ways in which meat production contributes to climate change.
3. Watch the 16-minute YouTube video ‘From Farm to Fork’ and discuss in groups the impact of farming animals for food: https://www.youtube.com/watch?v=u9IU7GOPWAw
4. What are the drawbacks of chemical farming?
5. What are the benefits of organic food?
6. What is one of the major environmental issues associated with food processing?
7. How can sourcing food locally help with sustainable food production?
8. Download the app ‘Love your leftovers’ and describe some ways to use food leftovers.
9. Download the app ‘Shop Ethical!’ and list ideas for ethical food shopping.

References and resources


Carrington, D. 2014. Giving up beef will reduce carbon footprint more than cars, says expert. The Guardian, Tuesday 22 July. URL: https://www.theguardian.com/environment/2014/jul/21/giving-up-beef-reduce-carbon-footprint-more-than-cars


Have you ever noticed your mouth watering before you tuck into something tasty? This is not just because food is one of the biggest pleasures of life – it occurs because your body is preparing to digest the food you’re about to eat. Your saliva contains special enzymes that start breaking the food down so that your body can absorb the nutrients and turn them into fuel to provide you with energy.

The Australian Dietary Guidelines recommend that Australians enjoy a wide variety of nutritious foods from the following five groups every day:

- Plenty of vegetables, including different types and colours, and legumes/beans
- Fruit
- Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
- Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under the age of 2 years)
- Water

These nutritious foods lay the foundation for a healthy diet. However, the methods you use to prepare your food are also very important.

How Healthy Is Your Cooking?

The following cooking techniques have different effects on the nutritional value of your meals and also impact on your health and weight:

**Boiling**

Enter most kitchens on weeknights and veggies like carrots and potatoes will often be on the boil. Unfortunately, if vegetables are cooked at high temperatures until they are very soft, the boiling can deplete them of water-soluble vitamins such as vitamins A and B.

Healthy Cooking Tip: Cook vegetables on a lower heat and use pre-boiled water in the saucepan to reduce the time spent heating the water.

**Steaming**

This is the gold star technique for boosting nutrients in a meal. Steaming uses water vapour to cook the food without immersion in water, so the maximum vitamin and mineral content of the food is maintained. That is why foods like carrot and corn also look brighter when steamed and this makes steamed vegetables more visually appealing and satisfying to eat.

Research at the University of Illinois has shown that a vegetable such as broccoli loses its nutritional value when boiled or microwaved, but maintains its cancer-fighting properties when steamed. Research also shows that steaming vegetables reduces the loss of vitamin C far less than boiling.

Steaming vegetables is the best cooking method to retain flavour and nutrients – a delicious and nutritious side dish when dressed with extra virgin olive oil, lemon juice, salt and pepper.

Healthy Cooking Tip: If you don’t have a bamboo basket or a double saucepan, use a metal colander placed atop water in a saucepan to steam foods. Cook vegetables to an al dente texture (soft but still a little crispy) – the added crunch makes you chew more, stimulating appetite hormones that help you feel full for longer after a meal.

**Grilling**

This is a healthy, fast method for cooking meats like fish and steak because no oil is required. As a result, the kilojoule count of your meal is also lower.
Healthy Cooking Tip: To avoid drying food out, marinate meat and grill at a medium heat rather than on high.

Grilling or baking food is a healthy alternative to frying, to avoid excess, unhealthy fats and calories and high temperatures that destroy valuable nutrients.

Frying
With a double whammy of high heat and oil, frying is one of the least healthy cooking methods, so minimize its use. Invest in a few good quality non-stick pans of different sizes, so you need no oil or only a dash of olive oil when frying.

Healthy Cooking Tip: Avoid deep-frying. Any foods, such as meatballs, or chips, which are completely immersed in oil, will soak up the oil adding fats and kilojoules to your meal. Instead, aim to shallow-fry with only a little oil or no oil at all. Alternatively, cook foods like potato wedges and meatballs in the oven, with a brushing of olive oil.

Stir-frying
This is often used to prepare Asian meals such as stir-fries. You throw in a range of ingredients and within 10 minutes of cooking, you can tuck into a dinner, which boasts tender meat and crisp vegetables. Stir-fries are an effective way to enjoy a greater range of vegetables in your evening meal. They can also make some vegetables more appetizing. For example, broccoli, which some people find bitter when boiled, can taste sweeter and more enjoyable when mixed with flavoursome Asian sauces (choose varieties low in sugar).

Healthy Cooking Tip: Use a dash of oil on the bottom of the wok, and then add broth. Spoon or pour the broth to the sides of the wok rather than straight onto the bottom. This reduces the high cooking temperature and allows you to keep the vegetables crunchy, so that they maintain more of their vitamin and mineral content.

Roasting
This form of cooking browns food on the outside – making it tastier. It can be used as an alternative to frying, if you use healthy oil like olive oil to brush it with.

Tip: When making a roast, reduce intake of saturated fats (which can be unhealthy if over-consumed), by cooking the vegetables in a separate pan and basting them with olive oil rather than the drippings from the meat.

Slow Cooking
From tagines to vegetables curries, this no-fuss cooking technique can produce delicious fare. Although slow cooking does leach some vitamins into the liquid – they remain in the sauce so you still consume them.

Healthy Cooking Tip: Use a slow cooker – it can be set to switch on during the day so that your meal is cooked by the time you arrive home.

Poaching
This is a beneficial technique where foods are cooked in water, milk or stock at a low heat – it is ideal for delicate foods like fish and fruit. As well as being a lower kilojoule cooking method, poaching helps to maintain the moisture, which can make foods like chicken melt in the mouth.

Healthy Cooking Tip: Add ingredients for extra taste, such as herbs, spices, miso or soy sauce and serve the food with the broth so you consume any vitamins that have leached out during cooking.

Microwaving
A quick spin in the microwave can be a fast, efficient method for reheating leftovers or cooking vegetables like carrots or peas. Like steaming, microwaving involves short cooking time, so fewer nutrients in the food are lost.

Healthy Cooking Tip: Use glass containers. Though some of the research is controversial, there are studies suggesting that some kinds of plastic leech chemicals into food when heated in the microwave.

BBQing
Browning foods at high heat on a BBQ can create unhealthy chemicals called AGEs (Advanced Glycation End-products). Recent research suggests that excessive consumption of AGEs may be linked to conditions like cancer, dementia, diabetes and narrowing of the arteries. For this reason, it is best to keep BBQs for special occasions or the weekend.

Healthy Cooking Tip: Marinate your meat – studies show this can cut the AGE formation by half. Avoid over-browning meat or cooking it until charcoal appears as these are signs of high AGE formation.

Food Pathogens
An estimated 4.1 million Australians are affected by foodborne illness every year, according to the Food Safety Information Council. Within hours of eating, food pathogens can cause symptoms such as nausea,
diarrhoea and vomiting. Treatment for a mild bout of food poisoning involves rest, fluid intake and avoidance of fatty or dairy foods.

If you suspect you have more severe food poisoning, you should seek medical attention through your GP or your local hospital. Some types of food poisoning can be life-threatening. Food poisoning can also lead to severe dehydration, which may need to be treated by using a drip to increase body fluids.

Although some foods that are contaminated by bacteria have a bad smell or taste, the appearance and smell of food are not reliable indicators of whether a food is harbouring dangerous or unhealthy pathogens. That is why it is important to stick to the use by date of food and to handle and store food with care.

According to the Food Safety and Information Council, the most common pathogens that occur in food include:

**Salmonella spp. Campylobacter E. coli**

Salmonella is associated mainly with raw meats, poultry and dairy products. However, many other foods have been implicated in outbreaks caused by Salmonella, and these include mayonnaise, salads, milk, orange juice, sprouted seeds and dairy products, etc. It gets into other foods by cross contamination from contact with raw foods, utensils, equipment and hands.

In Australia salmonellosis tends to be more prevalent in the warmer, northern parts of the country and eating food that has been kept in the temperature danger zone for too long a time is often the cause of the illness. Numbers as low as less than 10 cells have been responsible for causing foodborne disease.

**Listeria monocytogenes**

Listeriosis is a comparatively rare form of foodborne illness, but it can be a very serious disease in a small group of individuals. Those who are pregnant, immunocompromised, young children and the frail elderly are quite susceptible to food poisoning from Listeria, which is widely found on foods and many raw foods are likely to be contaminated. Listeria is easily killed by heat although cooked foods can easily become recontaminated through poor food handling.

This is one of the few pathogens that can grow in the refrigerator, so ready to eat food should never be stored in the fridge too long. Although it can grow in the fridge, it will do so only very slowly so make sure your refrigerator is keeping your food at or less than 5°C.
Camylobacter

This is one of the most common causes of foodborne illness in Australia. Outbreaks have been linked to the consumption of undercooked poultry, mince and sausages, unpasteurised milk, and cooked foods that have been contaminated by raw foods like meat and poultry. Pets may also be a source of infection. Campylobacter doesn’t grow well in foods, but its presence in food can result in an infection. It is a problem because quite low numbers, ie. 500 to 600 cells of the bacteria can cause illness.

E. coli

Many strains of E. coli are harmless and are found naturally in the gut of humans and animals. Most often its presence in foods is an indication of faecal contamination of food or water.

A wide variety of foods have been implicated including unpasteurised apple and orange juices, sprouted seeds, fruit, raw milk cheese, salads and meat and meat products, especially undercooked minced meat patties in hamburgers. E. coli is easily killed by heating, so cooking food properly is a basic method of control. Water can also be a source of the bacteria.

Staphylococcus aureus

Animals and poultry also carry this bacteria on their bodies and all raw meat and poultry products should be handled as though they are contaminated. Raw milk can also be a source of this bacteria. It likes to grow in salty and sweet foods like those containing custard, hams, frankfurters, salads, cream-filled bakery products etc.

Staph. produces a heat stable toxin as it grows and it is the toxin that makes you sick. If it is allowed to grow in food the toxin will remain even if the food is cooked again. The toxin takes only a very short time to make you sick (1 to 6 hours) and causes nausea, vomiting, abdominal cramps and diarrhoea as the usual symptoms.

Clostridium botulinum

This is one of the more well-known foodborne disease microorganisms due to the severe nature of the illness. Fortunately, in Australia it is fairly rare.

As C. botulinum grows in food it produces a neurotoxin. This causes symptoms after about 12-36 hours after consumption, although this can vary. In the past it has been mainly associated with canned foods but it has recently also been associated with vegetables in oil and some other foods. If you want to produce your own vegetables in oil or flavoured oils you can keep them refrigerated for up to 10 days.

C. perfringens

This is usually associated with food that has been allowed to stay warm for several hours. During cooking, which will kill most types of bacteria, C. perfringens turns into another form called a spore. A spore is like a seed, it stays dormant in the food until conditions are favourable, then like a plant seed it will germinate and grow. The spores of C. perfringens are very heat resistant and will withstand boiling for several hours.

It likes the sort of conditions you get in casseroles, stews, gravies, pie fillings and any other bulk cooked foods when they cool. In the nice warm conditions of cooling food, the spores germinate and grow. Whenever you cool food, make sure you cool it quickly by transferring it into a shallow container and refrigerating it when the steam stops rising. A large stockpot, even in a commercial fridge can take several days for the centre temperature in the pot to reach 5°C.

Bacillus cereus and other Bacillus species

B. cereus can form heat resistant spores and a heat resistant toxin. If cooked food is allowed to cool slowly the spores can germinate. If growth occurs then the toxin can form under certain conditions. Reheating or lightly cooking the food will not destroy this toxin.

Although this bacteria can grow and produce toxin at refrigeration temperatures, it does so much more slowly than at room temperature. Precooked food should not be stored in the refrigerator for more than 2-3 days.

Safe Food Handling

Food spoilage or contamination that encourages bacteria growth often occurs due to mishandling of food. According to the NSW Food Authority, food poisoning is most often caused by:

- Not cooking food thoroughly
- Not storing foods that needs to be chilled at a temperature of below 5°Celsius
- Someone who is ill or has poor hand hygiene while handling the food
- Eating food after a ‘use-by’ date

To help reduce the risk of both food pathogens and food
poisoning:

1. **Wash Your Hands**

   Build up a lather with soap and rub your hands together and all over for around 20 seconds (around the time it takes to sing ‘happy birthday’). Rinse well under running water and dry thoroughly with a paper towel. To help reduce risk of bacteria being transferred to food, the FSIC recommends that you wash and dry your hands:
   - Before handling, preparing and eating food
   - After touching raw meat, fish, shell eggs or chicken
   - After blowing your nose, using the toilet or touching a pet

2. **Avoid Cross-Contamination**

   This occurs when bacteria are spread from food to food preparation surfaces, utensils and equipment. To avoid this, make sure raw meat and raw poultry don’t touch other foods. Keep them on a bottom shelf of the fridge in sealed containers so they can’t drip juices onto other foods. Use specific chopping boards to only chop raw meats and once you have, then thoroughly wash the chopping board, work surfaces and your hands. Make sure you never chop vegetables – particularly for a salad - on a chopping board or with a knife that has just been used to chop raw meat or it could contaminate the vegetables with dangerous bacteria that could cause illness.

   Research from Kansas State University shows that 90% of home cooks accidentally cross-contaminate meat with other foods. Their study showed that common problems were simply not washing hands after handling meats and then drying hands with paper towels that are then reused for hand drying.

3. **Heat and Cool With Care**

   According to the NSW Food Authority, temperature of food can greatly affect spoilage and freshness. They recommend these strategies:

   **Keep it cold:**
   - Keep the fridge below 5o Celsius
   - Place any food that needs to be kept cold in the fridge straight away
   - Don’t eat refrigerated foods if they have been left out at room temperature for two hours or more.
   - Defrost and marinate foods in the fridge, especially meats. Room temperature provides the perfect environment for bacteria to grow in some foods. For this reason, you should never leave meats out on the bench to defrost.
   - Shop with a cooler bag and picnic with an esky.

   **Keep it hot:**
   - Cook foods to at least 60o Celsius or hotter
   - Reheat foods to at least 60o Celsius or until they are steaming hot
   - Look for clear juices coming from chicken to indicate it is thoroughly cooked
   - Heat all marinades containing raw meat juices to boiling point before serving with the meat
   - Make sure there’s no pink visible in cooked meats such as chicken, mince or sausages.

   **Fresh is best. To avoid food pathogens, keep fresh food cold in a fridge under 5°C, when reheating leftovers make sure they are heated to at least 60°C or steaming hot, and do not leave warm food out for too long.**

   Steaks and roasts are fine to eat a little on the rare side because bacteria are only present on the surface and are destroyed by cooking. Cook chicken, minced or boned meats, hamburger, stuffed meats and sausages right through until they reach 75°C using a meat thermometer. If you have leftovers, reduce the temperature as quickly as possible. Divide the food into containers in small portions and put it into the fridge or freezer as soon as it stops steaming.

   Clean your kitchen cloth: As kitchen sponges and wipes sit at room temperature all day they are a perfect breeding ground for bacteria. Every few days soak them for a few minutes in bleach. Change to a new cloth regularly.

**Storing Food**

Keeping food fresh maintains its vitamins and minerals and also avoids wastage. So take steps to:

1. **Minimise Moisture**
The biggest enemy to food freshness is a build-up of moisture - it promotes the growth of mould and mildew, which accelerates spoilage. To keep fruit and vegetables as dry as possible:

- Avoid throwing unwrapped vegetables in the crisper - they will rapidly dehydrate as they release moisture. The best way to store vegetables and some fruits is to keep them in unsealed plastic bags or in paper bags for foods like mushrooms, which have a high water content.

- If it is a hot day and you've helped your parents with the shopping and your vegetables have perspired, blot them with a paper towel and let them air dry before you put them in the fridge.

- Regularly clear out from the fridge any vegetables that have started to go off before they spoil the entire contents of the bag.

2. Keep Fridge Foods Fresher

Adopt these strategies:

- For a longer shelf life, freeze meat and poultry until you’re ready to use them, and then thaw out in the fridge.

- Rewrap sandwich meats loosely in a clipseal bag or store in a sealed glass container rather than leaving them in the deli paper. Because the paper absorbs moisture it will become wet, accelerating a slimy coating and growth of bacteria.

- Keep milk in the back of the fridge, not on the door so that it is less affected by the fluctuating temperature when the fridge door is opened.

- Snip the stems of herbs and place them in the fridge in water, the same way you would a bunch of flowers. Alternatively, divide the bunch into small plastic bags and freeze them.

- Keep vegetables in perforated plastic bags or paper bags. Extend shelf life by removing leafy tops (eg from beetroot). Potatoes and onions should be stored at room temperature to reduce mould.

- Cut off the tops of leafy vegetables and remove the outermost damaged leaves on foods like cabbage and spinach before putting them in the fridge - this will slow mould and moisture build-up.

- Clean your fridge regularly. Use soapy water and clean wipes to clean fridge shelves and then dispose of the cloth.

3. Regulate Ripening

Are your avocados too ripe to use? Blame it on ethylene - a gas given off by fruit and vegetables. Most fruit requires ethylene to ripen. Fruits that give off high levels of ethylene gas include bananas, apples, avocados, mango, melons, nectarine, peaches, pears and tomatoes.

Simply by choosing which fruits you store together you can exercise some control over the ethylene ripening process. So try:

- Storing ripe bananas away from ripe apples or avocados to prevent decay.

- Keeping high ethylene foods out of contact with ethylene sensitive foods, which include asparagus, bok choy, broccoli, cabbage, carrots, cauliflower, eggplant, pumpkin, spinach and squash.

- Accelerating the ripening of foods like stone fruits or avocados by wrapping them in a paper bag with already ripe fruit such as bananas - and allowing the ethylene build-up to speed their ripening.

Eating Outdoors

Taking food to picnics and BBQs can increase the risk of spoilage and food poisoning. To make sure your enjoyable day outdoors is foodsafe:

- Take refrigerated foods in cold packs and insulated bags filled with frozen ice bricks.

- Prepare cooked food hours in advance (preferably the night before) so that it is not warm when you are packing it.

- Throw foods such as dips, pate and cheese out after the outing – don’t refrigerate them to eat over the coming days as they may now be harbouring bacteria.

- Never pour marinade from uncooked meat onto cooked meat – this also may have bacteria that can cause food poisoning.

Sharp Shopping

The food you buy at your supermarket should be in optimum condition so it lasts as long as possible: To ensure longevity:

- Buy foods at different stages of ripening. For example, with pears and bananas buy some that are green and some that have already turned golden.

- Check use-by dates: Don’t eat foods past their use-
by date. Remember that once you open something well before the use-by date, the shelf life of the food may be shortened. This is particularly true of dairy products - so if in doubt, throw them out.

**Student activities:**

1. Write a menu for the weekend using healthy cooking techniques. Under each meal choice, explain the health benefits of the cooking technique.

2. Buy a fresh loaf of bread and document (in writing and by photo) its appearance for a week after its use-by date, noting when the mould grows and other details like what colour it is and how rapidly it spreads.

3. Select a food pathogen and research and write a report about it.

4. Write a summary of how you handle hot and cold food in order to keep it safe. List at least five points under each temperature heading.

5. Design a food safety poster that shows how to avoid cross contamination in the kitchen.

6. Research Advanced Glycation End products (AGES) and write a short report about how they are formed, how they affect health and how to minimise their impacts.

7. Devise a short pamphlet explaining how to handle food safely at a BBQ or picnic.

8. Write a list of 10 common mistakes that people make that increase the risk of food pathogens growing.

9. Working in small groups, imagine that you are presenting a short five-minute segment about food safety on television. Work out what will go into the script, who will present the information and what visual aids they will include. Film the segment and show to the class.

10. Imagine you are a food blogger. Write a blog about how to keep food fresh for longer and avoid food spoilage.

**References**

- NSW Food Authority
- Department of Primary Industries Food Authority
- Food Safety Information Council
  - Accessed online: http://foodsafety.asn.au
- Food Standards Australia New Zealand
- Eat For Health Australian Dietary Guidelines
- Sneed, J., PHebus, R., Duncan-Goldsmith, D., Milke, D., Sauer, K., Roberts, K. R., Johnson, D.,
- Consumer Food Handling Practices
- Kansas State University
  - Food Protection Trends, Vol 35, No.1, p36-48
- Food Handling CSIRO Fact Sheet
- Food Safety Myths
- Department of Health WA
  - Article: Maximising the anti-cancer power of broccoli
  - Science Daily
  - Accessed online: https://www.sciencedaily.com/releases/2005/03/050326114810.htm

Editor: Natalie Parletta
Web: www.warringalpublications.com.au
Email: warringalpublications@edassist.com.au
Phone: (03) 8678 1118
Fax: (03) 8678 1118
PO Box 299, Richmond, VIC 3121