# Unit 2.2.3 - Designing and Adaptation of Recipes

## Key Knowledge 2.2.3

The considerations in the design and adaptation of recipes to suit individuals, households, and other groups with differing dietary requirements due to factors such as lifespan stage, activity level, personal food tastes and preferences, as well as medical (food intolerances and allergies), cultural and ethical food restrictions.

## Key Skills 2.2.4

Design and adapt food in response to specific dietary needs and considerations through practical activities.

## Key Skills 2.2.8

Design and develop a practical food solution in response to an opportunity or a need in a domestic or small-scale setting.

## Key Skills 2.2.9

Undertake practical activities to explore domestic and small-scale commercial food production.

## Key Terms and Definitions

**Activity level** refers to the amount of physical activity or exercise an individual engages in on a daily basis. It is an important factor to consider in food studies because it affects energy expenditure and nutrient requirements.

**Ethical restrictions**, in the context of food, refer to limitations or guidelines individuals adopt in their dietary choices based on moral or ethical beliefs. These restrictions are often driven by concerns about animal welfare, environmental sustainability, or social justice.

**Lifespan stage** refers to the different phases of an individual's life, such as infancy, childhood, adolescence, adulthood, and old age. In the context of food studies, understanding lifespan stages is crucial because nutritional requirements and dietary needs vary depending on age.

**Medical restrictions** such as food intolerances and allergies involve adverse reactions to certain foods or food components.  Medical conditions such as food intolerances and allergies involve adverse reactions to certain foods or food components.

**Personal preferences** refer to an individual's subjective likes and dislikes regarding various foods and flavours. These preferences can be influenced by factors such as cultural background, upbringing, previous food experiences, and sensory perception.

**Sociocultural restrictions**, in the context of food, refer to limitations or guidelines a group of people adhere to in their dietary choices due to social or cultural factors. These restrictions are influenced by societal norms, traditions, customs, and cultural practices. They can vary widely across different regions, communities, and cultural groups.

# Unit 2.2.3 - Designing and Adaptation of Recipes

Being able to design recipes and adapt them is important if you are cooking for other people. This section explores various factors that influence dietary requirements, such as lifespan stage (age), physical activity, personal preferences, medical restrictions, and cultural and ethical considerations.

## Adapting Recipes for Different Lifespan Stages

Our nutritional needs vary greatly at different stages of life due to various factors. Each stage presents unique dietary demands and challenges, which is why it is important to be able to adapt recipes to meet people's specific needs.

**Infancy**

Infancy has the most demanding nutritional requirements in relation to body weight. Babies need nutrient-dense foods to support rapid growth and development. Breast milk is a good for infants because it is balanced and supports immune development. Infants who are bottle-fed also obtain a balance of vital nutrients. After six months, foods rich in iron, protein, and energy should gradually be introduced along with breastfeeding or bottle-feeding.

At around 4 to 6 months of age an infant begins to consume a wider range of foods. Pureed fruits, vegetables, and proteins are commonly introduced. Many parents nowadays are beginning to use an approach called baby-led weaning at around the age of 6 to 9 months. This involves introducing solid foods to infants that encourage self-feeding and exploration of different tastes and textures. With baby-led weaning, caregivers offer pieces of soft food that the baby can easily pick up and handle without the risk of choking. Examples of suitable foods include steamed vegetables, soft fruits, cooked pasta, toast strips, and small pieces of meat or fish. When feeding infants, it is important to introduce allergenic foods gradually and watch for symptoms of a food intolerance or allergic reaction.

**Childhood**

Children experience steady physical growth and development; they require adequate protein, energy, vitamins, and minerals. Childhood is an important time when healthy dietary habits can be formed. Well-balanced nutrition promotes optimal growth and health and helps prevent nutrition-related diseases and problems later in life.

Recipes might be adapted to be nutrient-dense, incorporating more whole grains, lean proteins, fruits, and vegetables.

Some children tend to be graziers when it comes to food consumption. A "grazer" refers to a child who prefers to eat small, frequent meals or snacks throughout the day rather than consuming larger meals at specific times. The only time that grazing becomes a problem is when it leads to unhealthy food choices and a high energy intake.

Children tend to be graziers for various reasons:

- Grazing may be their way of self-regulating their food intake, they eat when they feel hungry and stop when they feel satisfied.
- Children have high energy requirements due to their growth and development. Grazing allows them to refuel their energy levels.
- Some children find it challenging to sit down for a full meal due to a shorter attention span.

**Adolescence**

Adolescence is a period of rapid growth and development, second only to infancy. During this stage, the body's nutritional needs increase to support puberty's hormonal changes, rapid physical growth, and bone development. Diets should be rich in protein, iron (especially for menstruating females), and calcium for bone health. Energy needs tend to be higher due to increased physical activity and growth spurts.

Often, adolescents show a preference for fast foods and takeaway-style meals which are can be high in salt, sugar, and unhealthy fats. Adapting recipes during this stage of life may involve creating healthier versions of these popular foods. For instance, a traditional pizza can be made healthier by using a whole grain crust, low-fat cheese, and an abundance of colourful vegetables.

Adolescents often lead busy lives with additional commitments such as school and extracurricular activities, social events, and casual employment. For this reason, they tend to prefer foods that they can ‘eat-on-the-go’. Adapting recipes to make them portable suits adolescents. For example, wraps or burritos containing proteins, whole grains, and vegetables can all be portable meal and homemade with nutritious ingredients.

Promoting self-sufficiency in food preparation can also be a valuable part of recipe adaptation. Choosing recipes that adolescents can prepare themselves, with guidance as needed, can encourage better food choices, and foster develop their cooking skills.

**Mid-to-late Adulthood**

It is important for adults to consume a balanced diet to maintain optimal body weight and prevent diet-related diseases later in life. Adults require lower amounts of certain nutrients, like iron, compared to adolescents. However, they do need higher amounts of other nutrients, like fibre, to aid digestion, and reduce the risk of obesity, type two diabetes, and heart disease.

Menopause usually occurs for women in late adulthood. This signifies the end of a woman's reproductive period and is associated with hormonal changes, particularly a decrease in oestrogen levels. During and after menopause, the decline in oestrogen levels can lead to bone loss. Over time, this can increase the risk of osteoporosis, a condition where bones can become fragile bones and more likely to break. As a result, post-menopausal women's have an increased need for calcium and vitamin D.

During this adulthood it is important to adapt the portion sizes of meals to meet changing energy needs and include a variety of foods, promoting a balance of calcium, proteins, carbohydrates, and fats.

**Older Adults**

As people age, their metabolic rates and physical activity tends to decrease, reducing overall energy needs. However, their need for nutrients remains the same, or in some cases, increases. For instance, older adults need more calcium and vitamin D to maintain bone health, and they cannot absorb Vitamin B12 as well as they once did. Consequently, nutrient-dense foods that are low in saturated and trans fats, cholesterol, salt, and added sugars are important for this age group.

Older adults tend to prefer foods with stronger flavours due to decreased sensitivity of taste buds. Therefore, recipes could be designed and adapted to include more herbs and spices.

In addition, older adults might experience difficulties in chewing due to poor dental health. Adapting recipes to include softer food items, or preparing foods in ways that make them easier to chew can help address this issue.

Furthermore, due to slower metabolic rates in later years, the need for energy-dense foods decreases. However, the need for nutrient-dense foods remains. Therefore, recipes may need to be adapted to be lower in energy but still high in nutritional value.



## Adapting Recipes for Different Activity Levels

The activity level of an individual plays an important role in determining their dietary needs. Depending on whether a person leads an active or sedentary lifestyle, the energy and nutrient requirements can vary significantly.

**People with Moderate to Low Activity Levels**

Sedentary individuals, such as those who work desk jobs or lead a physically inactive lifestyle, have different nutritional needs. Their energy expenditure is lower, so their energy needs are lower. This prevents excess energy intake, which can lead to weight gain and associated health risks.

It is important to consider the following points when designing and adapting recipes for people with low activity levels:

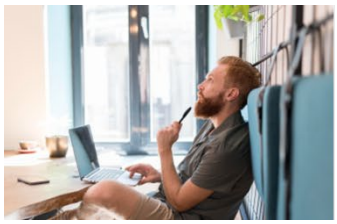
- Adapt portion sizes to ensure energy intake aligns with the individual's needs.
- Be careful about the amount of added fats and oils in recipes. Use cooking methods like baking, grilling, or steaming instead of frying. Choose cooking sprays, non-stick pans, or alternative cooking methods that require less oil.
- Choose lean protein sources such as skinless poultry, fish, legumes, and tofu. Trim visible fat from meats and remove the skin from poultry to reduce saturated fat content.
- Incorporate a variety of vegetables and fruits into recipes to provide essential vitamins, minerals, and fibre. They can add volume and increase satiety, nutrients, and flavours to dishes without significantly increasing the energy content too much.
- Replace refined grains with whole grain options like brown rice, quinoa, whole wheat pasta, or whole grain bread.
- Reduce the amount of sugar used in recipes. Reduce or substitute the amount of sugar in baking by using alternatives like natural sweeteners, such as mashed bananas or unsweetened applesauce.
- Use herbs, spices, and seasoning blends to add flavour to dishes.
- Ensure meals contain a balance of carbohydrates, proteins, and unsaturated fats.

**People with High Activity Levels**

People with high activity levels, such as athletes or those with physically demanding jobs, have higher energy and nutrient needs than those who are less active. The body uses up more energy during intense physical activity, and this energy needs to be replaced through the diet to maintain health and support recovery and performance. The body needs energy not only during physical activity but also to repair and build tissues afterward. Carbohydrates are the body's primary source of energy and should form a significant portion of an active person's diet.

Here are some key aspects of sports nutrition:

- Athletes require adequate amounts of macronutrients (carbohydrates, proteins, and fats) to fuel their physical activity.
- Proper hydration is crucial for optimal performance. Athletes need to replace fluids lost through sweat to maintain adequate hydration levels. Water is generally sufficient for shorter durations of exercise.
- Consuming a balanced meal or snack before exercise is important to provide the body with readily available energy. The meal should include carbohydrates for fuel, moderate protein to support muscle maintenance, and be fairly low in fat and fibre to aid digestion and prevent discomfort during exercise.
- For prolonged and intense workouts, consuming easily digestible carbohydrates during exercise can help maintain blood sugar levels and provide sustained energy.
- Proper nutrition after exercise is crucial for recovery and muscle repair. Consuming a combination of carbohydrates and protein within the first hour after exercise helps replenish glycogen stores, supports muscle protein synthesis, and facilitates recovery.
- Increased protein intake is necessary for muscle repair and recovery. Protein provides the essential amino acids that the body uses to repair muscle tissues damaged during intense exercise. It also aids in building new muscle fibres, especially important for strength and resistance training athletes.



## Adapting Recipes for Personal Preferences

When designing and adapting recipes to cater to personal tastes and preferences, cooking methods can be as influential as the ingredients themselves. Different methods can alter textures, flavours, and even the colour of foods, thereby affecting their appeal to different individuals.

The texture of food can significantly influence its appeal. For example, some individuals might prefer vegetables that are crisp and retain some bite, while others might like them soft and fully cooked. You can design and adapt to cater to these preferences by varying cooking methods: steaming or sautéing for a firmer texture, or stewing and roasting.

Cooking methods can also dramatically alter a dish's flavour. Grilling or roasting can develop rich, savory flavours through the Maillard reaction (a chemical reaction between amino acids and reducing sugars), ideal for those who prefer robust, hearty dishes. On the other hand, for those who favour subtle, natural flavours, poaching or steaming can gently cook the ingredients without overwhelming their inherent taste.

The visual appeal of a dish, including its colour, can impact its desirability. Some cooking methods can enhance or alter the colour of foods, making them more appealing to the eater. For example, caramelising onions or searing meat can create a deep, golden-brown colour, while blanching vegetables can help retain their vibrant and natural colours.

## Adapting Recipes for Medical Restrictions

Medical conditions, coeliac's disease, food intolerances and food allergies can severely impact an individual's health and quality of life. Designing and adapting recipes to assist people with these dietary restrictions is important.

**Coeliac Disease**

Coeliac disease is an autoimmune disorder. People with this disease should not consume gluten. Gluten is a protein found in wheat, barley, and rye. When people with coeliac disease consume foods or drinks containing gluten, their immune system responds by damaging the small intestine's villi—tiny, finger-like projections that increase the intestine's surface area to aid nutrient absorption.

When designing and adapting recipes for individuals with coeliac disease, it's essential to avoid all sources of gluten. This means not only avoiding obvious sources like bread and pasta made from wheat, barley, or rye but also being aware of hidden sources of gluten that can be found in sauces, flavouring sachets, condiments, and snack foods.

Here are some important rules to follow when designing and adapting recipes for people with coeliac's disease:

- Use grains and starches that are gluten-free, such as rice, corn, potatoes, amaranth, buckwheat, millet, quinoa, and teff.
- Check the labels on processed foods and condiments, as these can often contain hidden gluten. Soy sauce, for example, usually contains wheat and should be replaced with tamari or a certified gluten-free soy sauce.
- Prevent cross-contamination by using separate utensils, cutting boards, and serving dishes for gluten-free foods can help prevent this.
- Ensure that the diet remains nutritionally balanced. Gluten-free does not necessarily mean healthy, and many gluten-free products can be low in fibre and high in sugar and fat. Therefore, aim to use whole, unprocessed gluten-free foods as much as possible.

**Food Allergies and Intolerances**

The Food Standards Australia New Zealand (FSANZ) has identified eight major food allergens that account for over 90% of allergic reactions in Australia: milk, eggs, fish, shellfish, tree nuts, peanuts, wheat, and soybeans. Reactions can vary from mild to severe, with symptoms including hives, nausea, stomach pain, diarrhea, itchy skin, shortness of breath, and in severe cases, anaphylaxis, which can be life-threatening.

When adapting recipes for people with food allergies, it is crucial to ensure that none of the ingredients in the recipe contain the allergen. This includes checking all food labels for potential sources of the allergen, as they can sometimes appear in unexpected places.

Common food intolerances recognised by FSANZ include FODMAP, wheat, lactose, and gluten intolerance. Consumption of any of these can cause symptoms like bloating, diarrhea, and abdominal cramps in sufferers.

Lactose intolerance is a common digestive disorder where the body is unable to fully digest lactose, a sugar found in milk and dairy products. This intolerance occurs due to a deficiency of an enzyme called lactase, which is required to break down lactose in the digestive system.

FODMAP is an acronym that stands for Fermentable Oligosaccharides, Disaccharides, Monosaccharides, and Polyols, which are types of carbohydrates that are not fully absorbed by the body and can be fermented by bacteria in the gut. This fermentation process can cause symptoms such as bloating, gas, stomach pain, and diarrhea in some people, especially those with irritable bowel syndrome (IBS). Recipes need to be adapted for people with FODMAP to reduce or eliminate certain foods that cause problems for sufferers.

## Sociocultural and Ethical Food Restrictions

Sociocultural and ethical considerations play significant roles in shaping dietary choices. While they are interconnected in many ways, they have distinct aspects that influence how individuals and communities choose what they eat.

Sociocultural dietary practices are developed through socialisation within a specific cultural or social group. On the other hand, ethical food choices are often individual decisions based on personal moral or ethical principles and beliefs.

### Sociocultural Dietary Practices

Sociocultural factors refer to the social and cultural influences that shape our food choices. They encompass traditions, norms, values, and beliefs that societies and cultures uphold. For example, certain societies traditionally follow a plant-based diet, while others are heavily meat-based due to factors such as geography, climate, and cultural practices.

Dietary practices in different religions are a good example of sociocultural influences. For instance, Muslims practice dietary laws (Halal), which prohibit the consumption of pork and alcohol. Buddhists might abstain from meat out of respect for all sentient beings.

### Ethical Food Choices

Ethical food choices are driven by personal beliefs about what is morally right or wrong concerning food production and consumption. These beliefs might stem from concerns about animal welfare, environmental sustainability, or fair-trade practices.

For example, some people choose organic foods to avoid consuming products grown with synthetic pesticides and fertilizers, while others prioritise locally sourced foods to support local economies and reduce the carbon footprint associated with transporting food. Some people might choose to be vegan or vegetarian while others choose to consume animal products.




## Recommended Food Substitutions when Designing and Adapting Recipes

The table below shows some common food ingredients and a variety of alternatives for each. These substitutions can cater to various dietary needs and preferences.

| Original Ingredient | Possible Substitutes | Reasons for Substitution |
|---|---|---|
| Milk (Dairy) | Almond milk, soy milk, oat milk, rice milk | For lactose intolerance, dairy allergies, or vegan diets |
| Wheat Flour | Almond flour, rice flour, coconut flour, oat flour | For gluten intolerance, celiac disease, or low-carb diets |
| Eggs | Flaxseeds (flax egg), chia seeds (chia egg), applesauce, mashed banana | For egg allergies, vegan diets, or to reduce cholesterol |
| Sugar | Stevia, honey, agave nectar, date sugar | For low-sugar diets, to reduce energy content, or for a lower glycemic |
| Butter | Coconut oil, olive oil, applesauce, avocado | For dairy allergies, vegan diets, or to reduce saturated fat |
| Soy Sauce | Coconut aminos, tamari (gluten-free), fish sauce | For soy or gluten allergies, or lower sodium diets |
| Meat (Beef, Chicken) | Tofu, tempeh, seitan, mushrooms, jackfruit | For vegetarian or vegan diets, or to reduce cholesterol and saturated fat |
| Gelatine | Agar agar, carrageenan, pectin, xanthan gum | For vegetarian or vegan diets, or for those who avoid pork |
| Honey | Maple syrup, agave nectar, date syrup | For vegan diets, or to vary flavor |
| Cheese | Nutritional yeast, vegan cheese, tofu | For lactose intolerance, dairy allergies, or vegan diets |
| Bread Crumbs | Almond meal, crushed nuts, gluten-free bread crumbs | For gluten intolerance, coeliac disease, or low-carb diets |

This table that highlights some common cooking methods and potential substitutes, each with a reason for the substitution.

| Original Cooking Method | Possible Substitutes | Reasons for Substitution |
|---|---|---|
| Frying | Grilling, Steaming, Baking | To reduce fat content and calories, making the dish healthier |
| Boiling | Steaming, Poaching, Braising | To preserve more nutrients that may be lost in boiling water |
| Deep Frying | Air Frying, Baking, Broiling | To minimize oil usage and reduce kilojoules. |
| Sautéing | Stir Frying, Steaming, Roasting | To reduce the amount of oil needed, potentially reducing fat content |
| Grilling | Broiling, Baking, Roasting | To offer similar flavours and textures without the need for a grill |
| Baking | Steaming, Poaching, Air Frying | To provide healthier cooking methods with lower fat content |
| Roasting | Braising, Baking, Broiling | To create a more moist and tender result, especially for tougher cuts of meat |

# Written Activity One

## 10+ Questions!

**Read** the content at this link: https://foodstudies.com.au/courses/unit-2-2-3/

**Answer** the questions below.

1. What are some factors that influence dietary requirements at different stages of life?

2. Explain the nutritional needs of infants and how recipes can be adapted to meet their development and growth requirements.

3. Describe the dietary demands of children and how recipes can support healthy growth.

4. What are the nutritional needs of adolescents and how can families structure mealtimes and meals to accommodate their developmental stage, preferences, and schedules?

5. Discuss the dietary considerations for mid-to-late adulthood, including menopause-related changes.

6. How do nutritional needs change for older adults, and what adaptations can be made to recipes for this age group?

7. For sedentary and active individuals, what recipe adaptations would you recommend to manage energy intake?

8. Imagine you're designing a meal plan for a group of adolescents with varying activity levels. How would you tailor the meal plan to provide sufficient energy for both sedentary and highly active individuals?

9. Consider a scenario where an individual in mid-to-late adulthood wants to maintain optimal bone health. How could recipe adaptations provide the necessary nutrients like calcium and vitamin D while also aligning with their changing dietary needs?

10. Think about a person who follows a vegetarian diet due to ethical reasons. How could you design a recipe that not only meets their nutritional needs but also aligns with their ethical food choices?

# Written Activity One

## Personalising Nutrition

In this activity, you and your team are nutrition experts working with a company called Personalising Nutrition. Your task is to select a client to work with for the week and create recipe adaptations that align with their specific dietary requirements. Each client has unique needs, and your goal is to ensure that their meals are not only nutritious but also enjoyable.

**Instructions:**

1. As a team, review the provided client scenarios. Choose one client whose dietary needs you would like to address for the week. Consider their age, activity level, health conditions, ethical choices, and any other relevant factors.

2. Discuss within your team the specific dietary considerations, nutritional challenges, and potential restrictions related to their situation.

3. Your task is to adapt three main meal recipes to cater to the chosen client's dietary needs. Design meals that are nutritionally balanced, taking into account essential nutrients, portion sizes, and any specific requirements mentioned in the scenario.

   Keep in mind any safety precautions or considerations related to the client's condition. For example, food allergies, pregnancy safety, or restrictions due to medical conditions.

   If relevant, incorporate ingredients that align with the client's cultural or ethical choices. Ensure that your recipe adaptations respect their preferences.
   Your recipes should not only meet nutritional needs but also be enjoyable to eat. Consider flavours, textures, and variety to make meals enticing.

4. Prepare a presentation or document showcasing your chosen client, their dietary needs, the adapted recipes, and the rationale behind each adaptation. Be ready to explain your choices.

5. After all teams have prepared their presentations, take turns presenting your chosen client and recipe adaptations to the class. Discuss the thought process behind your adaptations and address any questions.

**Scenarios**

**Client Scenario 1: The Energetic Athlete**

Meet Alex, a 16-year-old high school student who's a passionate soccer player. Alex trains rigorously, both with the school team and independently. Their goal is to improve their performance and potentially join a college soccer team in the future. However, Alex's energy needs are higher than the average teen due to their intense training regimen. Your team at Personalising Nutrition has been tasked with creating recipe adaptations that provide ample energy, support muscle recovery, and enhance endurance for Alex's active lifestyle.

**Client Scenario 2: The Green-Ethics Enthusiast**

Sophie, a 17-year-old environmental activist, has chosen to follow a vegetarian diet due to ethical reasons. She's deeply committed to sustainable living and wants her food choices to reflect her values. However, Sophie's concerned about meeting her nutritional needs, particularly protein and certain vitamins. Your team's challenge is to design recipe adaptations that not only provide well-rounded nutrition but also align with Sophie's ethical stance, making her feel like she's making a positive impact through her diet.

**Client Scenario 3: The Tech-Savvy Diabetic**

Meet Jake, an 18-year-old tech enthusiast who has recently been diagnosed with type 1 diabetes. Jake spends long hours coding and gaming, which often means irregular eating patterns. He's struggling to manage his blood sugar levels and is looking for meals that can help stabilize his energy and blood sugar throughout the day. Your team's task is to create recipe adaptations that prioritize complex carbohydrates, fibre, and balanced nutrition to assist Jake in managing his diabetes effectively while accommodating his tech-driven lifestyle.

**Client Scenario 4: The Expectant Artist**

Emma, an 18-year-old aspiring artist, is excited to share that she's pregnant. As she navigates her way through this unique journey, Emma is concerned about making sure her diet supports her and her baby's health. She's looking for recipes that provide essential nutrients like folate, iron, and calcium while addressing common pregnancy discomforts like nausea. Your team's challenge is to create recipe adaptations that are not only nutritious but also help Emma enjoy her pregnancy while focusing on her art.

**Client Scenario 5: The Cultural Explorer**

Javier, a 17-year-old student, has a passion for traveling and exploring different cultures. He's particularly fascinated by Asian cuisines and wants to incorporate more diverse and international flavours into his diet. He's open to trying new foods but is also conscious of his nutritional needs as a growing teenager. Your team's task is to design recipe adaptations that introduce Javier to a variety of flavours, ingredients, and cooking techniques from around the world while ensuring his dietary requirements are met.

**Client Scenario 6: The Health-Conscious Gamer**

Lily, a 16-year-old avid gamer, enjoys spending hours immersed in virtual worlds. However, her sedentary lifestyle has led to weight gain, and she's motivated to make healthier choices. She's looking for recipes that are both satisfying and promote weight management. Your team's challenge is to create recipe adaptations that include nutrient-dense, satisfying meals that Lily can enjoy during her gaming sessions while encouraging a more active lifestyle.

**Client Scenario 7: The Allergic Foodie**

Meet Max, a 15-year-old food enthusiast who loves experimenting with different cuisines. However, Max has multiple food allergies, including dairy, nuts, and shellfish. Despite these allergies, Max refuses to compromise on flavour and variety. Your team's task is to design recipe adaptations that provide exciting and diverse meals while strictly avoiding Max's allergens and ensuring he doesn't miss out on the joy of exploring different tastes.

**Client Scenario 8: The Mindful Meditator**

Sophia, a 17-year-old, has a deep interest in mindfulness and meditation. She believes that nourishing her body with the right foods is essential for mental well-being. Sophia is looking for recipes that support brain health, focus, and concentration. Your team's challenge is to create recipe adaptations that include ingredients known for their cognitive benefits and design meals that align with Sophia's holistic approach to health.

**Client Scenario 9: The Time-Strapped Scholar**

Jordan, an 18-year-old college student, is always on the go, juggling classes, part-time work, and social commitments. Their busy schedule often leads to skipped meals and reliance on quick, unhealthy snacks. Jordan is seeking recipe adaptations that are easy to prepare, require minimal cooking time, and offer balanced nutrition. Your team's task is to create recipes that provide convenience without compromising on health, helping Jordan maintain energy and focus throughout the day.

**Client Scenario 10: The Taste Adventurer**

Olivia, a 16-year-old with an adventurous palate, is eager to try new and exciting flavors. She enjoys experimenting with unique ingredients and combinations. Olivia is looking for recipe adaptations that offer a burst of flavours and textures while supporting her nutritional needs. Your team's challenge is to create recipes that incorporate a variety of tastes and ingredients, satisfying Olivia's curiosity while ensuring well-rounded nutrition.

# Practical Activity One

## Lifespan Dietary Analysis

In this task, you will conduct a dietary analysis for individuals in different lifespan stages using the Australian Dietary Guidelines (ADGs) checklist and the Australian Guide To Healthy Eating (AGtHE) blank diagram.

**Instructions:**

1. Divide into small working groups.
2. Select one of the food diaries below.
3. Use the checklist provided to analyse your chosen food diary.
4. Identify any areas of concern, such as nutrient deficiencies or excessive consumption of certain food groups.
5. What potential recipe adaptations or recommendations would you make to this food diary?
6. How could you improve the food diary for your chosen lifespan stage.

| **Meals** | **Food Diaries** | | |
|---|---|---|---|
| | **Childhood (10-year-old)** | **Adolescence (16-year-old)** | **Female Adult** |
| **Breakfast** | Bowl of cereal with milk, sliced banana | Oatmeal with almond milk, mixed nuts and seeds, sliced strawberries | Breakfast: Toasted Muesli with whole milk and a glass of orange juice. |
| **Mid-morning snack** | Apple slices | Chocolate Chip Muffin | Fruit |
| **Lunch** | Turkey sandwich with margarine, whole grain bread, lettuce, and tomato; carrot sticks; water | Quinoa salad with mixed vegetables, grilled chicken breast, water | Fast food burger with fries and a soda. |
| **Afternoon snack** | Chicken Nuggets from a fast-food shop | Potato Crisps | Packaged cookies. |
| **Dinner** | Fried chicken breast, steamed broccoli, mashed potato | Baked salmon, colourful salad, quinoa, water | Baked salmon with lemon and herbs, steamed broccoli, and a side of roasted sweet potatoes. |
| **Evening snack** | Popcorn | Ice cream | A handful of almonds and a cup of herbal tea. |

**The Australian Dietary Guidelines (ADG) and Australian Guide to Healthy Eating (AGtHE) Checklist**

| Chosen Food Diary | Questions | Circle |
|---|---|---|
| Fruit and Vegetables | Are fruits and vegetables included in the diet? | Yes / No |
| | Are a variety of colours and types of fruits and vegetables consumed? | Yes / No |
| | Is the recommended daily intake of fruits and vegetables met? | Yes / No |
| Grains | Are whole grains included in the diet, such as whole wheat bread, or brown rice? | Yes / No |
| | Are refined grains limited? | Yes / No |
| | Is the recommended daily intake of grains met? | Yes / No |
| Protein Foods | Are protein-rich foods included in the diet, such as lean meats, legumes, or tofu? | Yes / No |
| | Is the consumption of processed or high-fat meats limited? | Yes / No |
| | Is the recommended daily intake of protein foods met? | Yes / No |
| Dairy or Dairy Alternatives | Are dairy products or alternatives included in the diet? | Yes / No |
| | Is the consumption of full-fat dairy products limited? | Yes / No |
| | Is the recommended daily intake of dairy or alternatives met? | Yes / No |
| Healthy Fats | Are healthy fats included in the diet, such as avocados, nuts, seeds, or olive oil? | Yes / No |
| | Is the consumption of saturated and trans fats limited? | Yes / No |
| | Are the recommended intake levels of healthy fats considered? | Yes / No |
| Added Sugars | Are added sugars limited in the diet? | Yes / No |
| | Is the consumption of high-sugar foods or drinks minimised? | Yes / No |
| | Are the recommended limits for added sugars adhered to? | Yes / No |
| Sodium | Is the intake of sodium from processed or packaged foods limited? | Yes / No |
| | Are low-sodium options chosen whenever possible? | Yes / No |
| | Is the recommended limit for sodium intake followed? | Yes / No |
| Fluid Intake | Is water the primary source of hydration? | Yes / No |
| | Is the consumption of sugary beverages limited? | Yes / No |
| | Is the recommended daily fluid intake met? | Yes / No |

# Practical Activity Two

## Choose Your Own Adventure!

In this task, you have the exciting task of designing and adapting a recipe to suit the needs of various families. Your choices will shape the recipe you make and determine its success.

**Step 1: Choose a Family**

- ☐ The Johnsons: A family with two working parents and two school-age children.
- ☐ The Parkers: An elderly couple who enjoy cooking and experimenting with new flavours.
- ☐ The Garcias: A single parent with a toddler and a newborn baby.
- ☐ The Smiths: A family with a teenage athlete and a vegetarian parent.

**Step 2: Select an Activity Level**

- ☐ Sedentary: The family has a mostly inactive lifestyle.
- ☐ Moderately Active: The family engages in regular physical activities a few times a week.
- ☐ Highly Active: The family participates in intense physical activities on a daily basis.

**Step 3: Personal Food Tastes and Preferences**

Choose from the following options:

- ☐ Comfort Food: The family enjoys hearty and familiar dishes.
- ☐ Adventurous Palate: The family loves trying new flavours and exploring diverse cuisines.
- ☐ Health-Conscious: The family prefers nutritious and light meals.
- ☐ Traditional: The family appreciates classic and timeless recipes.

**Step 4: Food Intolerances and Allergies**

Select from the following options:

- ☐ Coeliacs Disease: One family member has coeliac's disease.
- ☐ Gluten Intolerance: The family cannot consume gluten-containing ingredients.
- ☐ Dairy Allergy: Two family members are allergic to dairy products.
- ☐ Nut Allergy: One person in the family has a severe nut allergy and must avoid nuts and related products.

**Step 5: Cultural and/or Ethical Food Restrictions**

Choose one of the following options:

- ☐ Kosher: The family adheres to kosher dietary laws.
- ☐ Halal: The family follows halal dietary guidelines.
- ☐ Vegetarian: The family abstains from consuming meat and fish.
- ☐ Vegan: The family avoids all animal-derived ingredients.

**Remember, the success of your recipe depends on how well you incorporate all the chosen elements.**

**Be creative and enjoy the process of creating a meal that is tailored to meet the unique requirements of each family!**

## Recipe for Adaption

### Stuffed Red Capsicums

**Ingredients:**

1 medium-sized capsicum, remove tops and seeds
1 tablespoon olive oil
⅓ cup vegetables, diced
⅓ cup protein, diced
⅓ cup grains
1 to 2 tablespoons cheese (optional)
1 to 4 teaspoons sauces
Herbs and Spices

**Select your fillings from below:**

**Vegetable Ideas:**

- ☐ Onion
- ☐ Mushrooms
- ☐ Peas
- ☐ Corn
- ☐ Carrots
- ☐ zucchini
- ☐ Spinach
- ☐ Broccoli
- ☐ Cauliflower
- ☐ Eggplant
- ☐ Celery

**Protein Ideas:**

- ☐ Chicken breast
- ☐ Minced beef
- ☐ Minced turkey
- ☐ Firm tofu
- ☐ Black Beans
- ☐ Tuna

**Grain Ideas:**

- ☐ White Rice
- ☐ Brown Rice
- ☐ Quinoa
- ☐ Cous Cous
- ☐ Risoni

**Spice Ideas:**

- ☐ Garlic powder
- ☐ Onion powder
- ☐ Paprika
- ☐ Cumin
- ☐ Salt and Pepper

**Herb Ideas:**

- ☐ Parsley
- ☐ Basil
- ☐ Oregano
- ☐ Mixed Herbs

**Sauce Ideas:**

- ☐ Tomato or barbeque
- ☐ Worcestershire
- ☐ Soy Sauce
- ☐ Tomato Paste
- ☐ Chilli
- ☐ Salsa & Sour Cream

**Cheesy Ideas:**

- ☐ Feta
- ☐ Mozzarella
- ☐ Parmesan
- ☐ Tasty or cheddar
- ☐ Vegan
- ☐ Lactose free

**Method:**

1. **Remove** the core from the capsicum.
2. **Cook** the grain according to the packet instructions.
3. **Preheat** the oven to 190°C. **Line** the baking dish with baking paper.
4. In a large fry pan, **heat** the olive oil over medium heat.
5. **Sauté** the diced vegetables. **Cook** until the vegetables are tender.
6. **Fry** the protein and **cook** thoroughly.
7. **Stir** in the cooked grain.
8. **Season** with salt and pepper.
9. **Add** 1 tablespoon of water and **mix well**. Add the sauce now or when serving the capsicums in step 14.
10. **Stuff** the hollowed-out capsicums with the filling mixture and **wrap** them in foil. **Place** in the baking dish.
11. **Sprinkle** shredded cheese (if using) on top of each capsicum.
12. **Bake** in the preheated oven for 25-30 minutes, or until the capsicums are tender and the cheese is melted and bubbly.
13. **Allow** the capsicums to cool slightly before serving.
14. **Serve.**

## Reflection Questions:

**Answer** the following questions.

1. What factors influenced your choice of family for the recipe adaptation? How did their stage in life and circumstances shape your decisions?

2. How did the chosen activity level impact ingredient selection, portion sizes, and overall nutritional balance in the recipe?

3. How did the family's personal food tastes and preferences guide your ingredient choices? Did you make any modifications or introduce new ingredients to meet their preferences?

4. How did you adapt the recipe to accommodate food intolerances and allergies? What substitutions or alternative ingredients did you use to ensure safety and enjoyment for those with dietary restrictions?

5. How did cultural and/or ethical food restrictions influence the recipe adaptation? Did you include specific ingredients or remove certain components to align with the family's dietary guidelines?

6. Describe the process of adapting the stuffed capsicum recipe to meet the unique needs of each family. How did you select vegetables, proteins, grains, spices, herbs, sauces, and cheese to create a flavourful and well-rounded dish?

7. Reflect on any challenges you faced during the recipe adaptation. How did you overcome them and find creative solutions?

8. Did you discover any successful or interesting flavour combinations or ingredient substitutions? How did these additions enhance the taste and presentation of the stuffed capsicums?

9. Do you believe the adapted recipe would meet the nutritional needs of the chosen family? Did you create a balanced and nourishing meal that catered to their specific requirements?

10. What did you learn about the importance of flexibility, adaptability, and creativity in recipe development? How can this experience be applied to real-life situations where dietary needs and preferences vary?

# Practical Activity Three

## Morning Tea Muffin Madness!

You and your classmates are part of a baking club, and you have an exciting task ahead. Your school has requested a variety of muffins for a morning tea event, and they need to cater to different dietary needs. As a group, you will need to come together, discuss the dietary needs, and organise who will cater for which need.

**Step 1**

Begin a group discussion where everyone brainstorms and identifies the dietary restrictions you need to cater for.

**Step 2**

As a group, organise yourselves into smaller groups or pairs.

Each group or pair will be responsible for developing a recipe that caters to a specific dietary need.

**Step 3**

Research and develop your muffin recipes that meet the specific dietary needs assigned to your group.

Refer to this webpage to learn about ingredient substitutions: https://foodstudies.com.au/courses/unit-2-2-3/

**Step 4**

Prepare a shopping list for your muffins and submit this to your teacher.

**Step 5**

Bake your muffins!

Set-up a visually appealing display of your muffins. Use decorative elements, such as colourful napkins or labels indicating the dietary needs catered to by each muffin flavour. Ensure clear labelling of potential allergens and be mindful of cross-contamination.

**Step 6**

After the morning tea event, gather as a group to discuss your experience.

Share feedback from both the guests and you.

Reflect on what you learned about accommodating dietary needs and the importance of inclusive baking.

Discuss any challenges faced and how you could improve in the future.

**Basic Muffin Recipe**

**Ingredients:**

| | |
|---|---|
| 250g all-purpose flour | 120g unsalted butter, melted and cooled |
| 150g granulated sugar | 2 large eggs |
| 2 tsp baking powder | 180 ml milk |
| ½ tsp salt | 1 tsp vanilla extract |

**Method:**

1. **Preheat** the oven to 180°C. **Line** a muffin tray with paper liners or grease it lightly with butter or cooking spray.
2. In a mixing bowl, **whisk** together the flour, sugar, baking powder, and salt until well combined.
3. In a separate bowl, **whisk** together the melted butter, eggs, milk, and vanilla extract.
4. **Pour** the wet ingredients into the dry ingredients. **Stir** gently with a spatula until just combined. Be careful not to overmix; a few lumps are okay.
5. **Distribute** the batter evenly into the prepared muffin tray, filling each cup about 2/3 full.
6. **Bake** in the preheated oven for approximately 18-20 minutes, or until a toothpick inserted into the centre of a muffin comes out clean.
7. **Remove** the muffin tray from the oven and **allow** the muffins to cool for a few minutes before transferring them to a wire rack to cool completely.

# Summary Activity

## Designing and Adapting Recipes

Complete the following tasks.

| **What is the main idea about this key knowledge and key skills?** | |
|---|---|
| Write two or three sentences in your own words. | |
| **Outline the nutritional needs of each of the following lifespan stages.** | |
| Infancy | |
| Childhood | |
| Adolescence | |
| Mid-to-late adulthood | |
| Older Adults | |

| **Outline how recipes and diets would need to be adapted for each of the following:** | |
|---|---|
| Low activity levels | |
| High activity levels | |
| Coeliac Disease and Gluten intolerance | |
| Lactose intolerance | |
| Nut allergy | |
| Vegan diets | |

# Exam Preparation

## Multiple-Choice Questions (5 marks)

**Choose** the response that is correct or that **best answers** the question.

1. Which nutrient is particularly important for bone health during adolescence and post-menopause?
   a. Iron
   b. Protein
   c. Fibre
   d. Calcium

2. What is a characteristic of recipes adapted for mid-to-late adulthood?
   a. Lower portion sizes of meals
   b. Higher amounts of iron
   c. Focus on fast foods and takeaway-style meals
   d. Emphasis on strong flavours and spices

3. What cooking methods are recommended for people with low activity levels to reduce the amount of added fats and oils?
   a. Frying.
   b. Baking, grilling, or steaming.
   c. Deep-frying.
   d. Sautéing in oil.

4. Select the ingredient that would need to be substituted for someone with a gluten intolerance in the ingredients list below:
   All-purpose flour, sugar, baking powder, salt, milk, butter or oil, eggs, vanilla extract, blueberries, and nuts.
   a. All-purpose flour
   b. Sugar
   c. Baking powder
   d. All of the above.

5. Which ingredient is typically not allowed for consumption in a Kosher diet?
   a. Chicken breast
   b. Olive oil
   c. Pork
   d. Salt

## Short Answer Questions (15 marks)

**Question 1** (3 marks)

Outline one difference in nutritional needs between adolescence and children and provide a reason for this difference. (3 marks)

**Question 2** (6 marks)

Study the breakfast below.

Ingredients: One fried egg, fried bacon and one slice of wholegrain bread.

*Source: https://www.freepik.com/premium-photo/fried-egg-with-toasted-bread-bacon_10484678.htm#page=2&query=BREAKFAST&position=32&from_view=search&track=sph*

Evaluate the nutritional value of this breakfast for an active adolescent and recommend improvements. (6 marks)

**Question 3** (6 marks)

The owners of a small café have noticed an increasing number of customers with allergies and intolerances coming in seeking suitable food options. Realising the need to cater to this growing demand, they decided to expand their menu to include dishes to meet the needs of people who have intolerances and allergens.

Identify three food allergens or intolerances and describe some meals that the café could provide to meet these dietary needs. (6 marks)

| **Food allergen or intolerance** | **Description of a meal to meet this dietary need** |
|---|---|
| | |
| | |
| | |