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92014



Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 1 Materials and Processing Technology 2024

### 92014 Demonstrate understanding of sustainable practices in the development of a Materials and Processing Technology design

Credits: Four

#### ASSESSMENT TASK

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of sustainable practices in the development of a Materials and Processing Technology design.	Examine sustainable practices in the development of a Materials and Processing Technology design.	Evaluate sustainable practices in the development of a Materials and Processing Technology design.

Refer to this document to respond to the task for Materials and Processing Technology 92014.

Check that this document includes page 2.

Do not use chatbots, generative AI, or other tools that can automatically generate content.

**DO NOT TAKE THESE ASSESSMENT MATERIALS OUT OF THE ASSESSMENT ROOM.**

**Achievement**

**TOTAL 04**

## a) Final Outcome

I'm doing a kumara chicken bread roll for Ms. [REDACTED]. I'll make it on the 5th and 6th of September at the school kitchen. I make it to show manaaki to my client by make her a food and I will serve her a food in the school kitchen where the bread comes out fresh and hot from the oven. I'm making this because all of the ingredients used are seasonal, so it's sustainable and cheap. As she likes a chewy bread, I'm going to knead it for 12-20 minutes and I will use a standard flour that gives a chewy and gooey texture to the bread. I will make a bread rolls which have a seasonal vegetables in it (onions, carrots, kumara) with my client's favorite ingredients, which is chicken. Also I'll add a scent of herbs in the bread by using dehydrated rosemary and will decorate the dish with fresh rosemary because I have a rosemary grow at the garden, so it doesn't cost any money. If I have leftovers in my rubbish bowl, I will put it in the food rubbish bin so that the food don't get wasted.



### Specifications

#### Physical Specifications

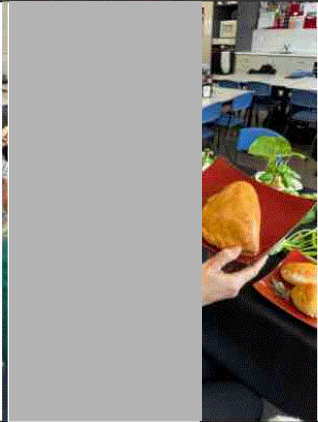
- Look appetising, I will measure this by asking my client for her opinion.
- Have nice golden brown on top, I will measure this by using an egg wash.
- Be perfectly semicircle shaped, I will measure this by shaping it carefully
- Enough for 1 portion, I will measure this by scaling the ingredients from the trial (down or up)

#### Functional Specifications

- Use incorporate zero waste method, for example order the quantity only what I need.
- Be made by matariki ingredients (kumara, carrots)
- Be able to cooked in 60 minutes.
- Be nutritious, I will measure this by add at least 3 kinds of seasonal vegetables (carrots, onions, kumara)
- Be savory and taste good, I will measure this by adding spices (tomato paste, onion, etc.)
- Feed full (satiety)

## a) Final Outcome

Image



Image



Who was your client?

My client is Ms. 

Where did they eat this?

She eats it at the school kitchen

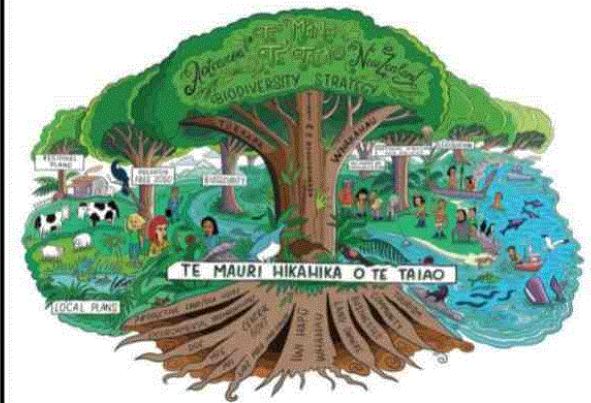
## b) Kaitiakitanga Discussion

Explain what kaitiakitanga is? How does this relate to sustainable practices? How has this impacted the *development* of your design?

### Discussion

Kaitiakitanga means guardianship, protection, or sheltering. It's a way of managing the environment. Based on the traditional Maori world view is to manage the resources sustainably and to ensure that the resources are passed to the next generations. Maori people believe that there is a deep kinship between humans and the natural world and all life is connected. Maori see human as a part of the web of life. In another word, people are part of the natural. Kaitiakitanga involves respect for nature and commitment to maintaining balance in ecosystems.

Kaitiakitanga has impacted the development of my design by I have to consider about how can I use an ingredients sustainably and make sure that I only take what I need and don't waste anything. Such as I use a rosemary in my design because I have a rosemary grown in my garden and rosemary can use even it's fresh or dehydrated. So if I've got the fresh ones left, I can still dehydrate it and use it next time.



## b & c) Developing Design using Sustainable Practices

Insert pictures & discuss how you *selected ingredients* as part of your sustainable practice



### Discussion

I chose kumara instead of a normal potato because kumara gives both savory and sweet flavors. Also kumara is high in nutrients, as I said in the specifications that I want my food to be nutritious. I chose carrots and onions because they are all year available, means that they're seasonal vegetables and cheap. I chose dehydrated rosemary because I had a rosemary grown in my garden so I don't have any extra cost for that, and dehydrated rosemary gives more scents than a fresh one when I put it with the bread.

## b & c) Developing Design using Sustainable Practices

Insert pictures & discuss how you *economise your ingredients* as part of your sustainable practice



### Discussion

I used half of the chicken breast and to economise the waste, I gave another half to my friend so that we didn't waste any of them. I used half of the carrot and onions and another half of them I gave it to my friend. And for their skin, I putted it in a food rubbish bowl. For the spices, I only took what I need for my bread (by portioned it down from the first two trial) so I didn't leave any of them wasted.

## b & c) Developing Design using Sustainable Practices

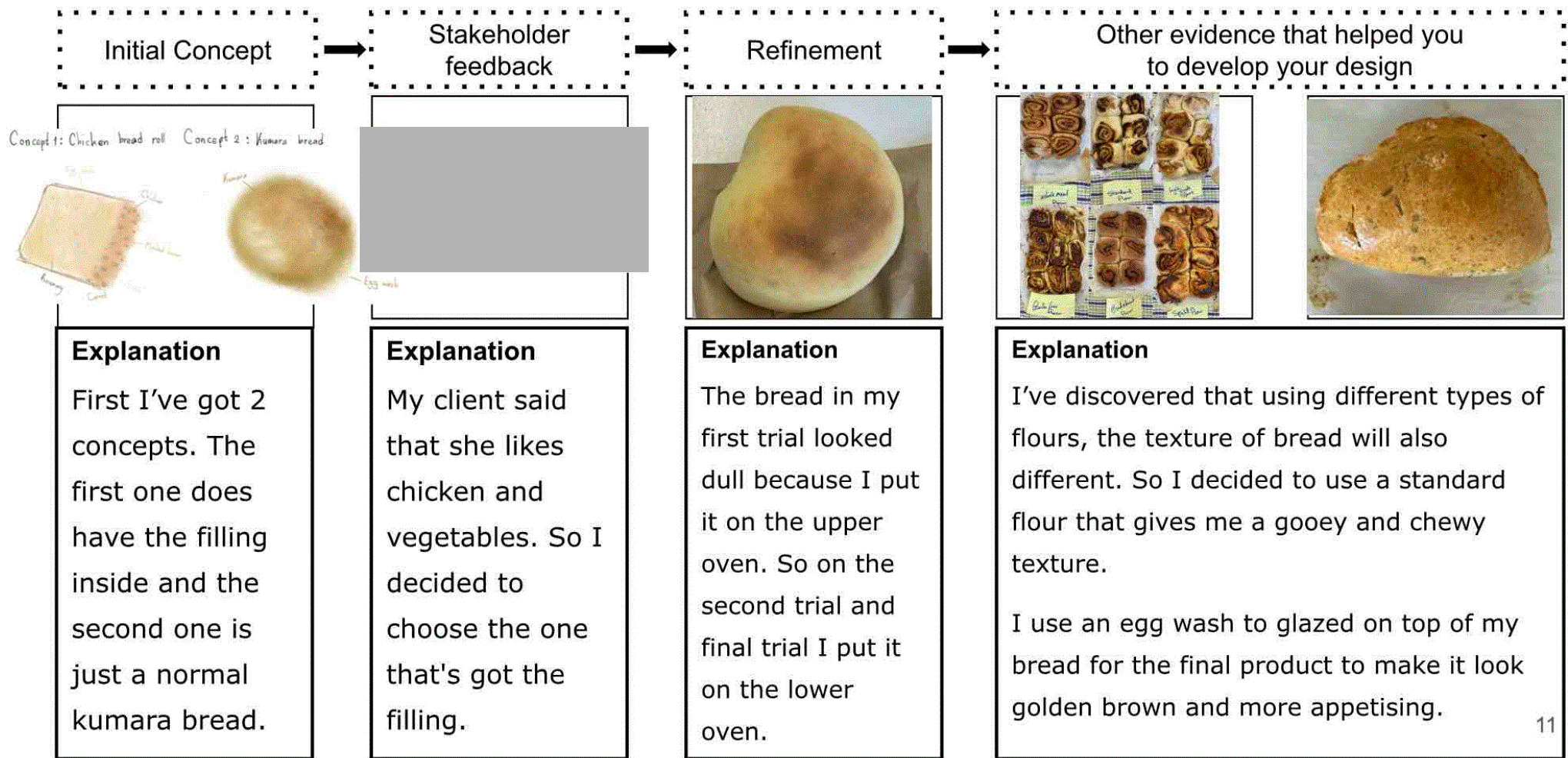
Insert pictures & discuss how you *appropriate disposal* as part of your sustainable practice



### Discussion

I got a leftover ingredients from my design (onion skins, egg skin, kumara skins) so I've put it in the food rubbish bin. After the food rubbish bin, it goes to a bokashi composting method. This bokashi composting is a method of composting that uses a specific group of microorganisms to ferment organic waste, resulting in a nutrient-rich soil amendment. This links to the sustainability concept by use a waste from the ingredients to make a compost to grow the garden. This means that we're passing the resources to the next generation so the resources are still there for them.

## c) Ongoing Development of my Design



## d) Stakeholder Feedback

- (i) **Who** were the different stakeholders you talked to about relevant sustainable practices?

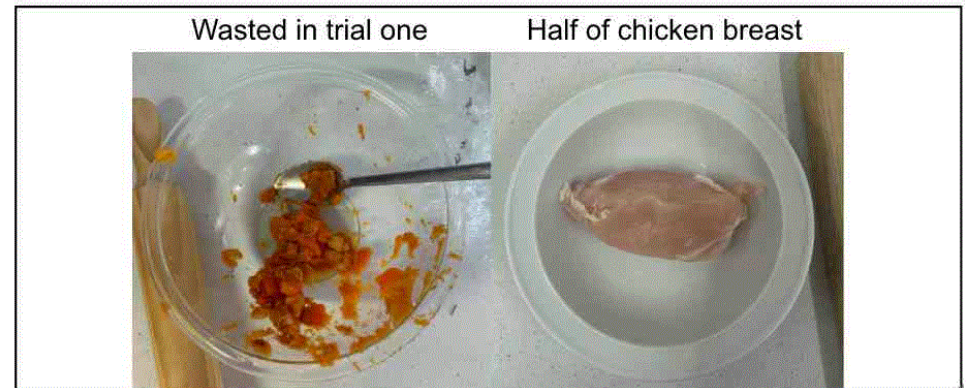
I've talked to Ms. [REDACTED] as she's a technical and Ms. [REDACTED] as a client.

- (ii) **What** did the stakeholders discuss with you in relation to sustainable practices?

Ms. [REDACTED] have a discussion with me on how I can make my bread with a sustainable ingredients approach to using Matariki ingredients such as kumara or carrots. Then she told me to do a research on the Matariki ingredients so that I know what they are and how is it sustainable. I talked to Ms. [REDACTED] about the ingredients she likes to be in the bread and if it's not sustainable, I've talked to her about how can we change it to make it more sustainable.

- (iii) **How** did you use that information to develop your design?

I did use the information by choosing the ingredients carefully and only take what I need so that there are enough for everyone and don't have any waste. Also I did scale the portion down as I in trial one I used too much of chicken breast, so in trial two and final trial I use half of it, so that I don't have any waste ingredients.



# Evaluation

In conclusion, sustainability is a way to manage the environmental so that we can use the resources without destroying the ecosystem and make the environment balanced. Kaitiakitanga is to always consider about the environment because we're a part of it, not just use the resources and not looking after them. So in every process of my project I'm always thinking about how I can use the ingredients without having anything wasted. As I go through the process, such as thinking of the brief, I consider that what should I make to make it the most sustainable and everyone can enjoy it. So I did a bread with all of the ingredients are seasonal so it's cheap because as they're grown in New Zealand, the time that it have been sent is shorter than the imported ones. Composting (such as bokashi method) is another way that we can reuse the resources sustainably and efficiently by reducing waste and make them into usable materials for the plants.

## Achievement

**Subject:** Materials and Processing Technology

**Standard:** 92014

**Total score:** 04

Grade score	Marker commentary
A4	<p>The candidate's design is for an end user. The specifications and intended environment are identified. There is sufficient evidence to meet EN2 requirements. A good explanation of kaitiakitanga is provided, including the holistic Māori world view – the interconnection of all living things. Consideration of sustainable practices is evident when choosing materials, highlighting seasonality, and how to extend the life of some ingredients. Improvements to the design have been described. Disposal of waste resources has been noted. Some stakeholder feedback is evident.</p>