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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.

Merit

TOTAL 06

- A) Provide an image and briefly describe its specifications, including physical and functional attributes, the person/whanau/community your design is for, and the product intended environment.



This image is an example of the product my group and I aimed to create.

The specifications of our design:

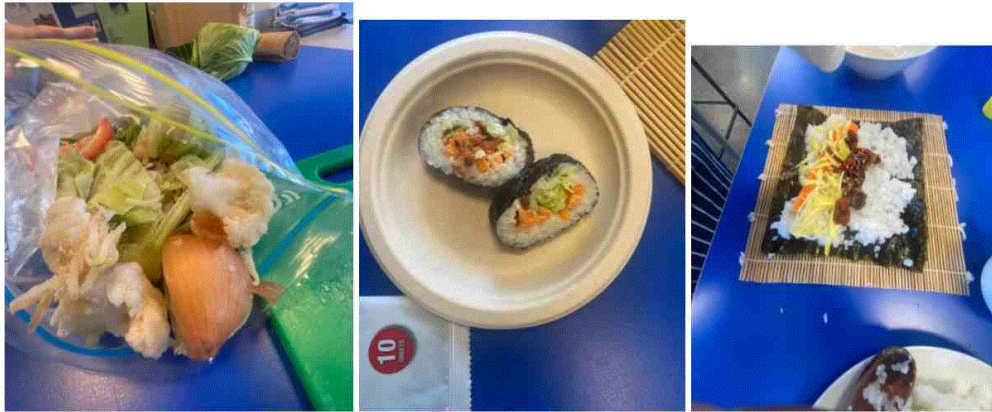
- Our sushi will be in diameter will be approximately 5-6cm.
- Our sushi will be approximately 3cm or less in height.
- Our sushi will have a minimum of 3 colors to make it visually appealing.
- Our sushi will have a wide range, including vegetarian sushi and tuna sushi which are the sustainable options.

The product I am creating is vegetarian sushi. I am creating our product for [REDACTED] who is a year 11 student at [REDACTED]. We decided to make her our main stakeholder because since the tuck-shop sells sushi all the time at our school, we think she'd be able to compare our sushi and the sushi she buys from the tuck-shop. Furthermore, [REDACTED] works at a sushi place so she knows the different types of sushi and what we can do to make it better. I will create sushi at school, using sustainable items, that were locally sourced. I am going to use basic kitchen utensils that can be found in a small kitchen, as I will be using 1 out of 6 identical small kitchens in the food tech room. I will be creating it during my food Tech periods during school. The ingredients I will be using will be sustainable, such as homegrown vegetables and using no meat/fish.

B) How did you apply sustainable practices during the development of your design?

Firstly, my group tried to think about the most sustainable food options that would meet our specifications. Sushi uses largely plant-based ingredients. They have a low carbon footprint, require less water, and can be locally grown and sourced. This made our choice of sushi a lot easier as most ingredients used are convenient. Overall, it would be much easier to make sushi. At first when I was planning with my group of our product, we decided we were going to do sushi that included tuna. However, we didn't really know if tuna was sustainable enough as there are multiple factors that could lead it to either being unsustainable or sustainable. According to our research performed, the sustainability of tuna largely depends on the different factors and methods and the process used to catch the fish. Sustainability also includes the type of species the fish is, certification and Labeling, and you can also consider the regions the fish is from, and if it is imported. Because of the research we did as a group we decided to change our product to vegetarian sushi, it was also convenient because we were able to use freshly grown vegetables like carrots, capsicums and cabbage. Before we decided to change our sushi vegetarian, instead of using meat our alternative choice was going to be using tofu. Tofu is a great alternative for meat, it is also a high plant-based protein source. Tofu is low in saturated fats and provides nutrients like iron, calcium and magnesium. Additionally, tofu has a lower environmental impact than fish due to the fewer resources that are required. The small amount of greenhouse gas emissions, and its reduced impact on biodiversity and water use. Fish from unsustainable places can have significant negative effects on ecosystems, carbon emissions, and resource consumption. Throughout our process of making sushi, we first gathered out materials and locally sourced ingredients. Before we started preparing the sushi and after we prepared the rice, we found some frozen vegetables that looked like they were scraps from a cook prior to ours. We decided to use these vegetables, so we minimized waste and used resources wisely. This is an example of Kaitiakitanga (which means guardianship/stewardship of the environment). Using locally sourced and freshly produced ingredients and frozen vegetables minimizes waste which proves the use of Kaitiakitanga and how it is incorporated into this cook and its sustainability. Avoiding using any type of meat/fish protects the marine ecosystems by not endangering any fish species and not encouraging the methods used to capture them. This is also another aspect of Kaitiakitanga. Another reason why we decided to use vegetables was because of our main stakeholder, [REDACTED]. We found out later on that she is unfortunately allergic to salmon and is a very picky eater and dislikes seafood in general. Obviously, since she cannot eat salmon and dislikes seafood, this gave us more of a reason to change our sushi to vegetarian sushi. The vegetables we decided to use were carrots and cabbages as our main two, then from the bag of frozen vegetable scraps, we included mushrooms and capsicums. We used these vegetables so that our sushi was suitable for my key stakeholder.

C)



In the photos provided, is the process of our product and in the middle, was our result. In the first photo we demonstrated using sustainable practices by using leftover vegetable scraps that were found in the freezer. This proves sustainability by minimizing waste of food and reusing the vegetable scraps to turn them into something better. In the last photo we used those food scraps, cooked them and put it together with the rice, seaweed, freshly cut cabbage and carrots.

D)

I) The two different stakeholders I consulted with were [REDACTED], who is a year 11 student at [REDACTED] and the other person who we considered our main stakeholder was [REDACTED] who is also a year 11 student at [REDACTED].

II) [REDACTED] said:

There were too many vegetables in one of the sushi's given but in the other the balance was better

- The rice was a bit wet
- The vinegar in the rice was a bit too strong, (although the vinegar is eco-friendly and not a danger to the environment making it sustainable)
- The texture of the seaweed and the sticky rice complimented each other well
- The second piece of sushi I ate was a bit thicker than the first, because that one had way more vegetables than the first.

stated:

- The rice was very moist
- There was a lot of vegetables
- The ingredients complimented each other well
- Could've chosen different vegetables that will be able to complement each other instead of cabbage, for example, avocados to give it a softer texture.
- The texture of the rice was a bit sticky

iii) The feedback is needed to be able to work on our product and how we can make it better from someone else's perspective. Feedback would also be useful so that we know the things people liked about sushi and the things the people think that we need to do better in order for improvement. This information also helped us understand the areas that needed improvement the most, it also helped us when the stakeholders stated specifically what was good and what could be better as that gave us an indication where the state of our product is and what we can do for better development in the future.

Merit

Subject: Materials and Processing Technology

Standard: 92014

Total score: 06

Grade score	Marker commentary
M6	The intended end user is identified and explained. Specifications have been clearly identified. The candidate has provided more than sufficient discussion of kaitiakitanga, with emphasis on sustainable, locally sourced ingredients. There was some evaluation of substitute materials due to stakeholder requirements. Improvements to the design have been explained. Economic use of materials has been explained. Stakeholder feedback has been considered in the development of the design.