NZQA

Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 1 Materials and Processing Technology RAS 2023

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

EXEMPLAR

Achievement   TOTAL **04**

Enter your 9-digit National Student Number (NSN) and School Code into the space at the top of slide 1. (If your NSN has 10 digits, omit the leading zero.)

Answer ALL parts of the assessment task in this document.

Your answers should be presented in Verdana font within the text boxes. You may include only information you produce during this assessment session. Internet access is not permitted.

Save your finished work using the following naming convention: **SchoolCode-YourNSN-92014.pptx**.
If you submit your report orally, embed the single file into this document.

If you open this document using software other than PowerPoint:

- save your slideshow as a PDF, using **SchoolCode-YourNSN-92014.pdf**

- if submitting oral responses with a PDF report, submit a separate file for the audio, using **SchoolCode-YourNSN-92014.mp3 or wma**

By saving your work at the end of the assessment session, you are declaring that this work is your own. NZQA may sample your work to ensure this is the case.

INSTRUCTIONS

Respond to the following task about how you **applied sustainable practices** in the development of a design.

You may support your answers with images, which can be inserted into the report where image boxes have been provided. *Do not use video files.*

You should aim to write no more than **800 words** in total. Where audio evidence is used, the total duration should not exceed **4 minutes**.

(a)   Your design – what it is

(i)   Who is your design for (i.e. person, whānau, or community)?

I have designed a waterproof duffle bag for my family(mom,dad,sister). *The purpose and reason why i designed this bag is to store food, phones, medication and water for my family in the rare event of us going into the state of emergency. The waterproof duffle bag was designed for my whanau/family when they are in need or if we are to ever be evacuated from our property.*

(ii)   What are the specifications of the design?
Physical Specifications
- **White and blue**
- **Recycled materials**
- **straps**
- **Pockets**
- **Size...cm**

Functional Specifications
- White and blue vinyl was the only colour available that fit the needs of my outcome
- Reduces waste, causing a lower environmental impact which shows kaitiakitanga and respect for future generations
- Make my outcome stronger and allows me to carry my bag more easily
- The inside pockets help hold everything that you need in place and it is easy to find what you are looking for
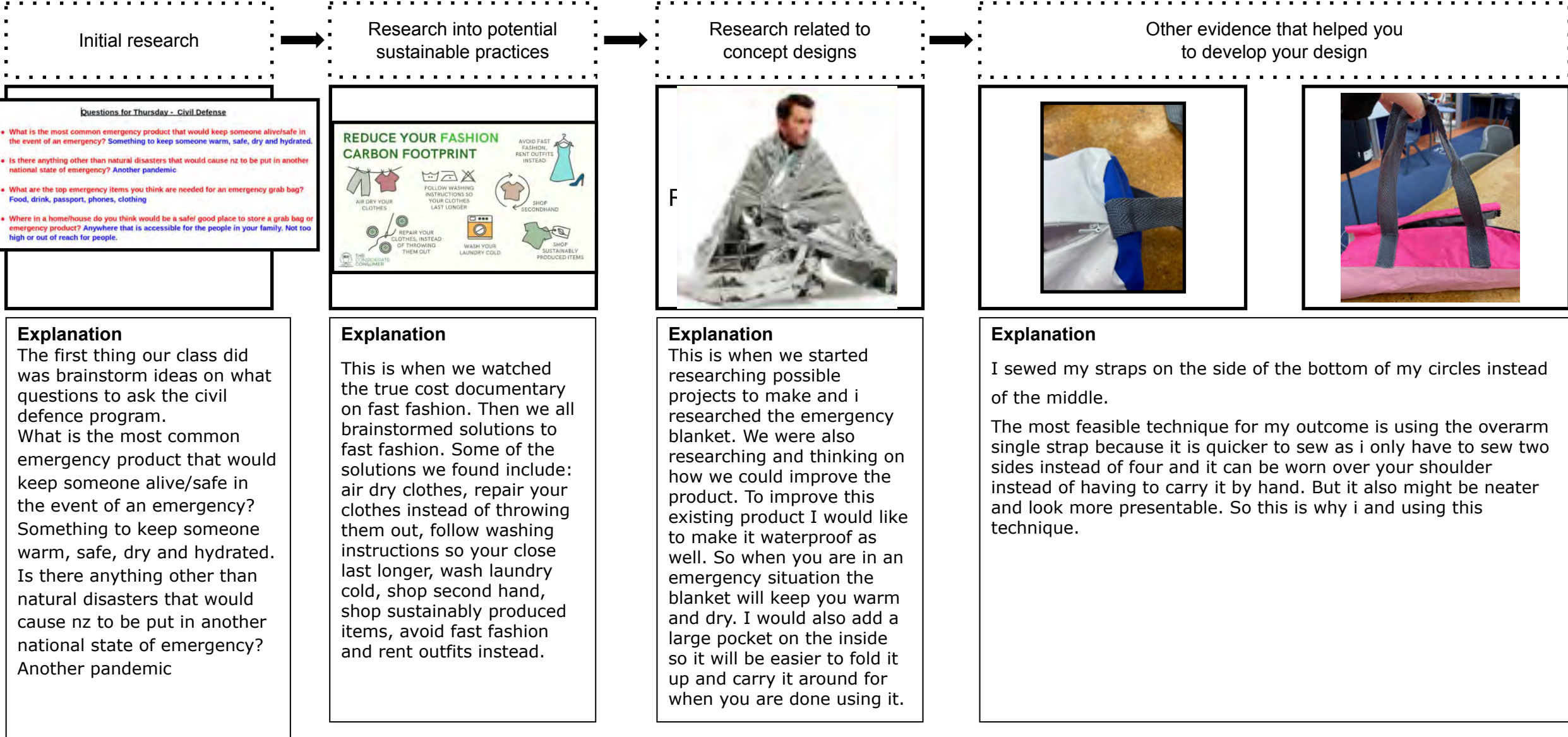- my bag is 40cm long and 23cm wide and the strap is 127cm long.

Insert an image of your design

(b) Key phases timeline

(i) Insert images of the different research you undertook at key phases of the design process.

(ii) Explain how these key phases (images) helped you to develop your design.

Initial research	Research into potential sustainable practices	Research related to concept designs	Other evidence that helped you to develop your design

Explanation
The first thing our class did was brainstorm ideas on what questions to ask the civil defence program.
What is the most common emergency product that would keep someone alive/safe in the event of an emergency? Something to keep someone warm, safe, dry and hydrated.
Is there anything other than natural disasters that would cause nz to be put in another national state of emergency? Another pandemic

Explanation

This is when we watched the true cost documentary on fast fashion. Then we all brainstormed solutions to fast fashion. Some of the solutions we found include: air dry clothes, repair your clothes instead of throwing them out, follow washing instructions so your close last longer, wash laundry cold, shop second hand, shop sustainably produced items, avoid fast fashion and rent outfits instead.

Explanation
This is when we started researching possible projects to make and i researched the emergency blanket. We were also researching and thinking on how we could improve the product. To improve this existing product I would like to make it waterproof as well. So when you are in an emergency situation the blanket will keep you warm and dry. I would also add a large pocket on the inside so it will be easier to fold it up and carry it around for when you are done using it.

Explanation

I sewed my straps on the side of the bottom of my circles instead of the middle.

The most feasible technique for my outcome is using the overarm single strap because it is quicker to sew as i only have to sew two sides instead of four and it can be worn over your shoulder instead of having to carry it by hand. But it also might be neater and look more presentable. So this is why i and using this technique.

(c)   Sustainable practices in the development of the design – **decisions about materials / components**

(i)   When you were planning your design, what materials and / or components did you decide to use?

When i was planning my design of my waterproof duffle bag i decided to use the materials which included donated fabrics and i choose white polyester and we also had a scrap bin of vinyl so i choose blue and white vinyl.
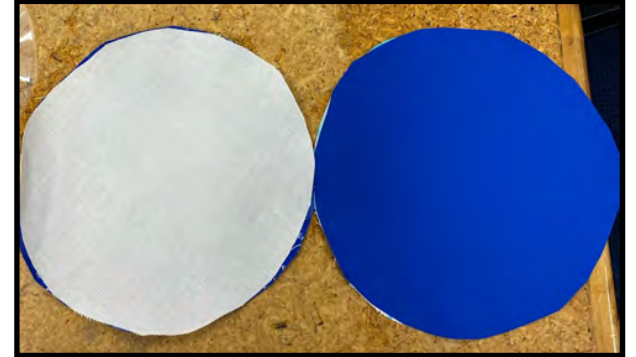
Waterproof vinyl and white polyester

(ii)   What other materials / components could you have used?

Some other materials or components that i could have used instead of vinyl to make my design waterproof could have been chip packets to make my bag waterproof or i could have used waterproof spray that you spray on top of your design and it makes it waterproof.

(iii)   How did you make the decision to use your chosen materials and / or components in (c) (i)?

The materials I selected for my outcome were donated materials which was polyester and scrap vinyl .I made the decision to select these because, the polyester was strong and durable and the vinyl is waterproof as well as an extra layer of thickness to my bag. They were also all available to me on the day because they were donated.

So I didn't have to spend any money.

(iv)   Discuss how you made improvements to your design during the development process.

You might consider:

- improvements to better meet the needs of the person, whānau, or community the design is for

- improvements in sustainable practice (materials, economy of use, waste disposal potential, or other aspects of kaitiakitanga).

You may support your response using images on the next slide.

An improvement that i meet for my outcome is using an invisible zip instead of a normal one because it looks neater, it is also more aesthetically pleasing and more waterproof ,but i trialled the normal zip and it was easier to sew. So i am using the invisible zip because it will benefit my product. I made sure I have economised materials and resources by ,using scrap vinyl pieces to cover my bag and make it waterproof. And if the vinyl wasn't the right size i would cut pieces off other scraps to help fit my bag. The inner layer of my bag as well as the layer connected to the vinyl are donated fabrics that I found in the sewing box that was provided for us to use.

The waste I had was even smaller pieces of scrap polyester and vinyl. I managed this by putting it into a recycle bin, i also ensured that when i was cutting my materials i wasn't wasting any fabric. If there were any scraps of vinyl that were too small to reuse i just threw it away. It could be repurposed for stuffing for a pillow or something that needs to be filled.

The materials I selected for my outcome were donated materials which was polyester and scrap vinyl .I selected these because, the polyester was strong and durable and the vinyl is waterproof as well as an extra layer of thickness to my bag. They were also all available to me on the day because they were donated. So I didn't have to spend any money.
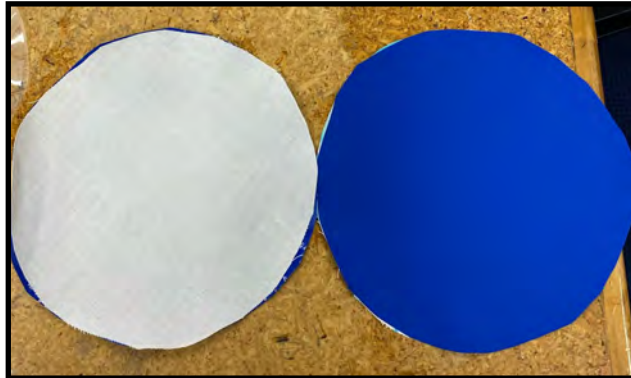
My design is also fit for purpose as it is easy to fold and store away until it is needed. In the pictures below you can see how easy it is to grab the waterproof duffle bag if there was ever a state of emergency and it is in reach of everyone in my household. On the inside of my bag i made an improvement of sewing open pockets instead of zip up pockets, by creating and inside layer out of leftover polyester and i sewed open pockets. This is because it is more functional as well as making the bag thicker and stronger.

You may include clearly labelled images to support your response to part (c) (iv).
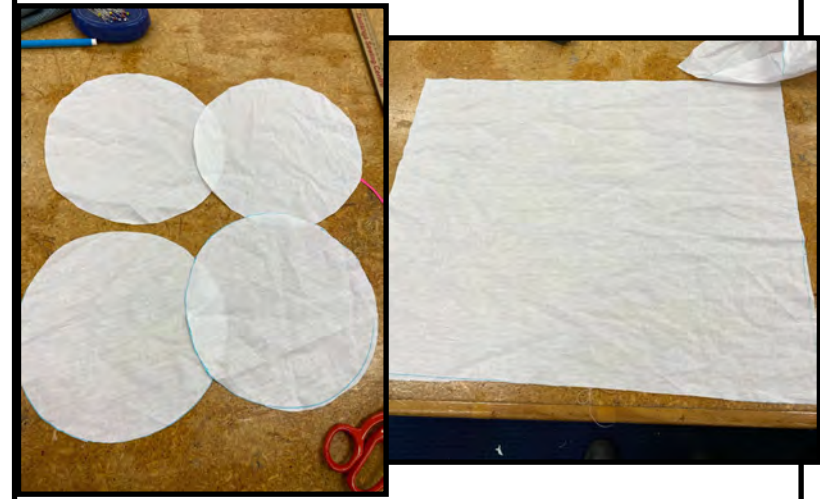
Invisible and normal zip

Waterproof vinyl heat pressed to the back of white polyester
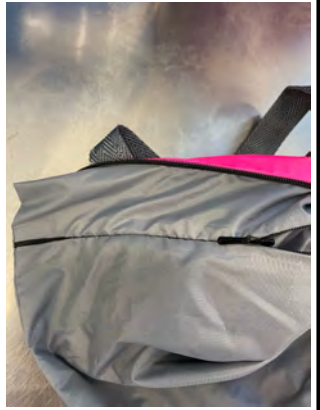

Donated fabrics

Chip packet
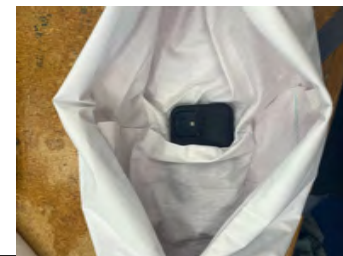

Where my outcome is stored

Open pockets

Zip up pockets

Image

(d)   Stakeholder feedback during the development of the design

Use feedback from TWO different points in the design development process. Use this slide for feedback (1) and the next slide for feedback (2).

Feedback (1)

(i) At what point in the design process did you ask for this feedback? Type an 'X' in the box that best describes the point in the process.	**(iv) Explain how you used the feedback to develop your design? You may support your response with a relevant image.**

(i) At what point in the design process did you ask for this feedback? Type an 'X' in the box that best describes the point in the process.

- [ ] Initial research
- [x] Research related to potential sustainable practices
- [ ] Research related to concept designs
- [ ] Research related to material exploration
- [ ] Research related to waste disposal options
- [ ] Refinement of designs
- [ ] Chosen design

(iv) Explain how you used the feedback to develop your design? You may support your response with a relevant image.

Well when mrs [redacted] told me this i immediately tested is out and it did in fact go quicker and look way more aesthetically pleasing. And i used less sting while making my product. This is shown in the pictures below.

(ii)   Who provided the feedback?

Mrs [redacted] my sewing teacher

(iii)   What was their feedback?

She suggested that overlocking the ends of the strap was good and i could do that but burning the ends with a lighter is quicker and would look neater and uses no string or anything.

Feedback (2)

(i) At what point in the design process did you ask for this feedback? Type an 'X' in the box that best describes the point in the process.

☐ Initial research

☐ Research related to potential sustainable practices

☐ Research related to concept designs

☐ Research related to material exploration

☒ Research related to waste disposal options

☐ Refinement of designs

☐ Chosen design

(iv) Explain how you used the feedback to develop your design? You may support your response with a relevant image.

I carried out this test of seeing if the iron or heat press worked better, because it helped me see which technique would help my product last longer. Ironing was good and easy for the sticking the small pieces on, but sometimes the fabric would lift and not stick properly so that why i am carrying out the heat press technique because it helps my bag last longer under certain conditions.

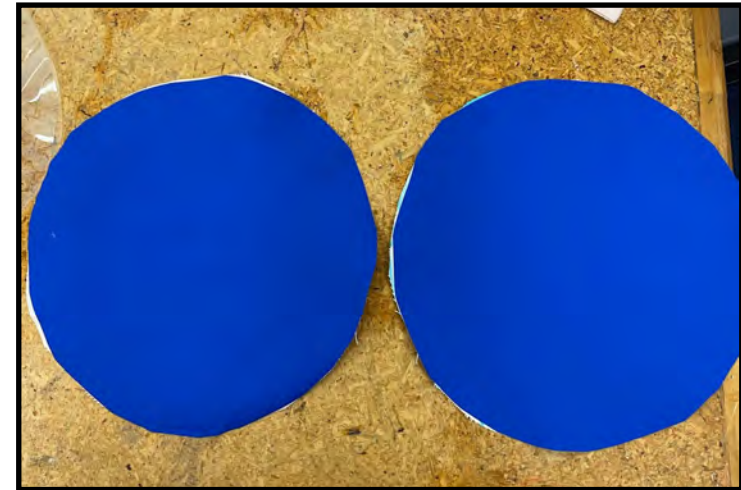(ii) Who provided the feedback?

One of my friends/classmates ( )

(iii) What was their feedback?

She was telling me that when she used the iron to stick the scrap vinyl onto the donated fabrics that is didn't really stick to well and kept on lifting which would wastes more vinyl but she suggested that the heat press was way better.

Vinyl stuck down using a heat press

Achievement

Subject: Materials and Processing Technology

Standard: 92014

Total score: 04

Q	Grade score	Marker commentary
1	A4	The candidate's design is for an end user. Specifications are identified. Research into sustainable practices is evident but is not considered when choosing materials, which were already determined. Improvements to the design are described. Economy of resources is noted. Some stakeholder feedback is evident.