Ensure students identify the task. Assessment Type 2: Design Process and Solution

Shoe Storage Design Brief

Need:

I am in the need for something that will successfully store all my shoes. At this current stage I have to many shoes and they are scattered all over my room. I will need to create something that allows me to organise my shoes, so I decrease the chance of losing a shoe.

+ve ; clear purpose identified

Design Brief:

To design and produce shoe storage which meets the following design criteria and constraints.

+ve ; clear criteria and constraints identified

Design Criteria

- Appropriate size to hold 10+ pairs of shoes
- High quality construction without visible screw/nail holes
- pine wood then staining it to create a colour that matches my room.
- Draws that can hold shoes and socks and flat surface that can have shoes on display.
- Laser print photo to resemble the shoe.

Design Constraints

- length and width of the shoe storage must be at least 2000mm x 1000mm.
- The location is 3000mm in length and 2700mm in width so my shoe storage can be no bigger.
- I will be using the school materials of pine wood and staining and some additional funds of handles/hinges and drawer runners.

Entertainment Unit	Pros	Cons
i) 	• Enough storage for shoes • No visible joinery • Compartments	• To big takes up a lot of space • Colour of timber is too dark • Rustic look • Gaps in wood are evident • Complex design
ii) 	• Natural timber • Interesting design • Compartments • No visible joinery	• Light timber • Too high • Not enough colour variation • Only drawers • Base may be a bit unstable • A bit complex • Height is to tall • Limited amount of storage
iii) 	• Natural timber • Simple • Compartments • No visible joinery • Stable Base • Good height	• Basic colour • Basic design • Not much storage • Light timber
iv) 	• Natural timber • Compartments • No visible joinery • Rustic • Stable base • Simple effective doors • Lots of storage for shoes	• Probably too much storage • Too big and tall • Basic colour • Light timber

v)		• Natural timber • Compartments • Holds a good amount of storage • Stable base • Simple/sleek • Good height	• No colour • Bit too wide
vi)		• Natural timber • Compartments • Stable base • No visible joinery • Interesting curves • Good height	• Probably not enough shoe storage • One tone • No colour tone

+ve ; 6 designs researched with pros and cons comments followed by an analysis of design features of exiting products that may be incorporated into solution.

Analysis of existing products

In the designs above I will incorporate some aspect from each into my final solution. **Product i** is the most similar colour to the furniture in my room but I will probably make my final solution a lighter brown as it will look better and match the other pieces of furniture. I like amount of storage in **product I and iv** but the size of both designs are too large and will not fit in my room. A better alternative is to make a smaller design like **products iii, vi** as it will allow my design to fit in my room. I would like to include drawers into the solution to make it more visually appealing, but not as complex as **product ii**. I will design the solution to have a flat stable surface like **product iii and vi** and include draws similar to **product v.** I would also like to add different sized compartments to my solution like **product vi** because it gives me the opportunity to potential add other stuff like socks or football boots.

-ve ; could have reduced word count here with just identification of new machinery / skills to be used in solution.

Analysis of Specialised Skills Tasks

Specialised skills task #1 was a set task given by the teacher. This skills tasked allowed us to use majority of the plant machinery in the workshop to familiarise ourselves with the SOP's and correct use of the machinery. During this task, some usage of the machinery was just a refresher and to help refine myself with it, and others it was the first time using it. Using the planer/jointer combination machine was a new experience and made me realise how long the process is to improve my wood from being bowed, cupped or twisted. Apart from this machine all other machines seem relatively easy to operate correctly and effectivel

+ve ; identified the resources and skills to be used in the making of the product

+ve ; identified timber to use and why.

-ve ; some reduction of word count could have occurred here.

Analysis of Resource Investigation

The **resource investigation** will consider the use of a number of different materials and will be analysed to determine which material is best for my product. I tested the three different materials, pine, Tasmanian oak and Jarrah. I tested how weak each piece of wood was and how easily scratchable each piece of wood was. From the testing I have chosen Pine wood as the material I will use for my product as it was resistance to objects hitting it and the scratches weren't as noticeable compared to Tasmanian oak and Jarrah. Unfortunately, throughout the testing it was evident that if something did scratch or dent a piece of Tasmanian oak or jarrah it would be more visually noticeable. Even though Tasmanian oak and jarrah are more naturally pleasing to the eye, I will be able to stain the piece of pine a similar colour to improve its appearance. It is also easier to access pine wood compared to Tasmanian oak and jarrah.

Design Development and Planning

+ve ; clear sectioning of report related to design process.

Rough Sketches/Plans

Design 1

Figure 1 : Design 1 includes three shelfs of storage to store shoes and two drawers at the bottom with 2 handles, one on each drawer. The entire design will be constructed out of pine wood.

Design 2

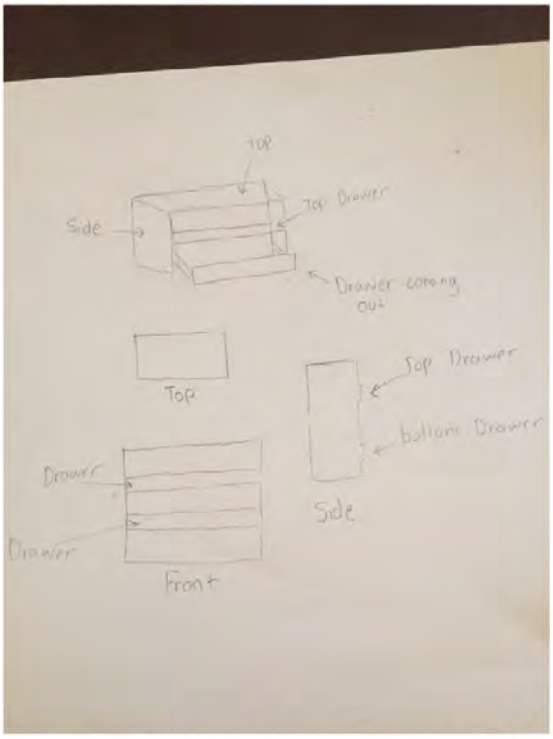


Figure 2: Design 2 includes two long drawers with 2 handles and will be constructed out f pine.

OFFICIAL

Design 3:

+ve ; 3 possible designs planned and briefly discussed . Reasons for selecting design 1 provided.

Figure 3: design 3 will include 6 shelfs made out of pine wood and two doors with 2 handles, and the doors will be connected with hinges.

Out of all of the designs I believe design 1 is the best option as it meets all of the design criteria. I will still need develop the design further to decide if I will have two drawers or maybe one big drawer at the bottom. Design 1 is probably the most naturally pleasing to the eye because it has a stable base and is not to tall.

Design features

Option 1 **$2.72**  Option 1 is simple and effective; it won't attract much attention and will do the purpose well. It is also very cheap.	**Option 2** **$4.15**  Option 2 is simple and would match the colour of my design. Not sure if I like the look of the handle
Option 3 **$6.99**  Option 3 is unique and looks heavy. The actual handle could continuously dent my design from when I open a drawer.	**Option 4** **$2.50**  Option 4 is cheap and I like the appearance of it. I believe the black colour will go well with my product.

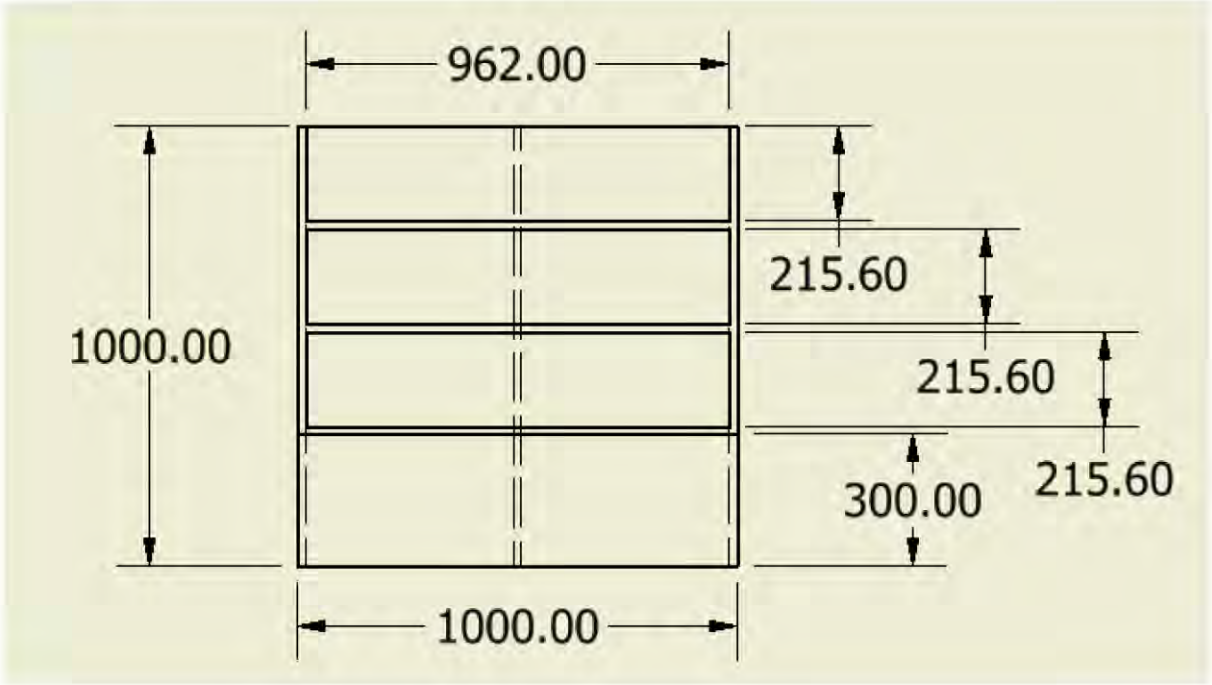
Options 1 and 4 would both be great for my solution as they are both simple, cheap and effective. But I would have to go see them in person to decide which handle I would use. Options 2 and 3 both look like heavy designs and I'm not sure if they would match my product, they are both also the most expensive handles.

+ve ; provided a decision and reason for use of handle choice

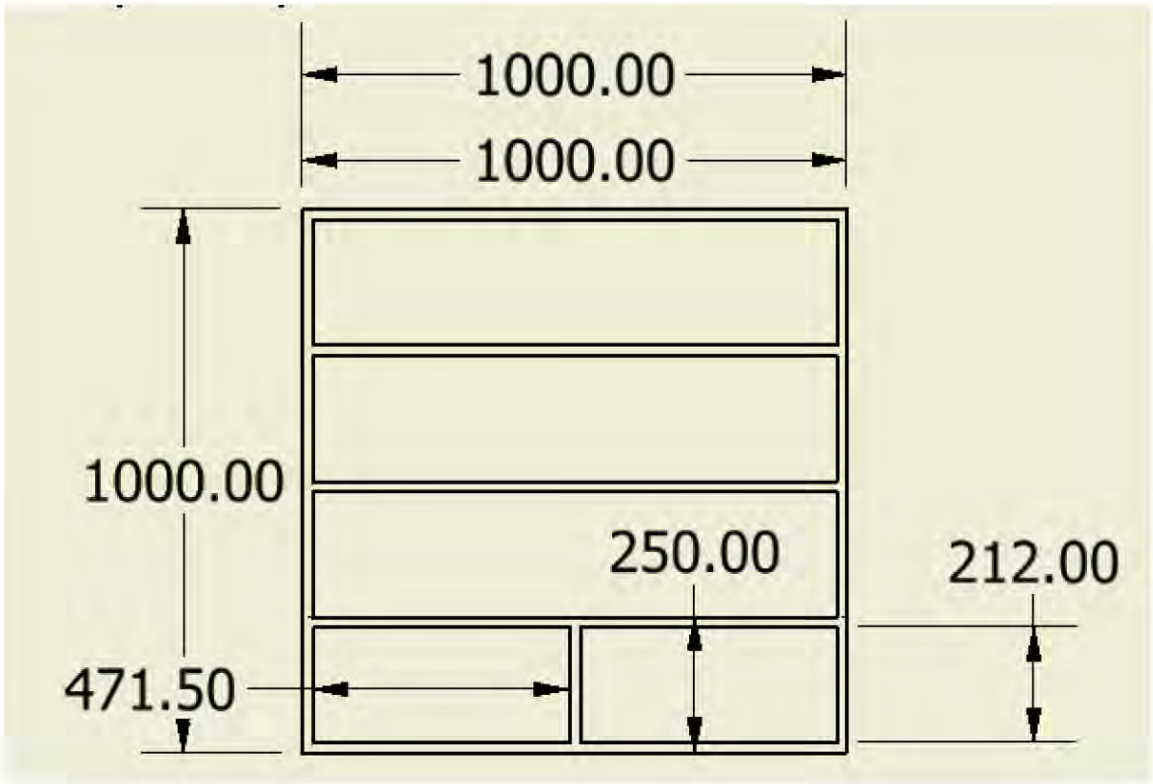
Final design

+ve ; final design drawings provided with measurement detail

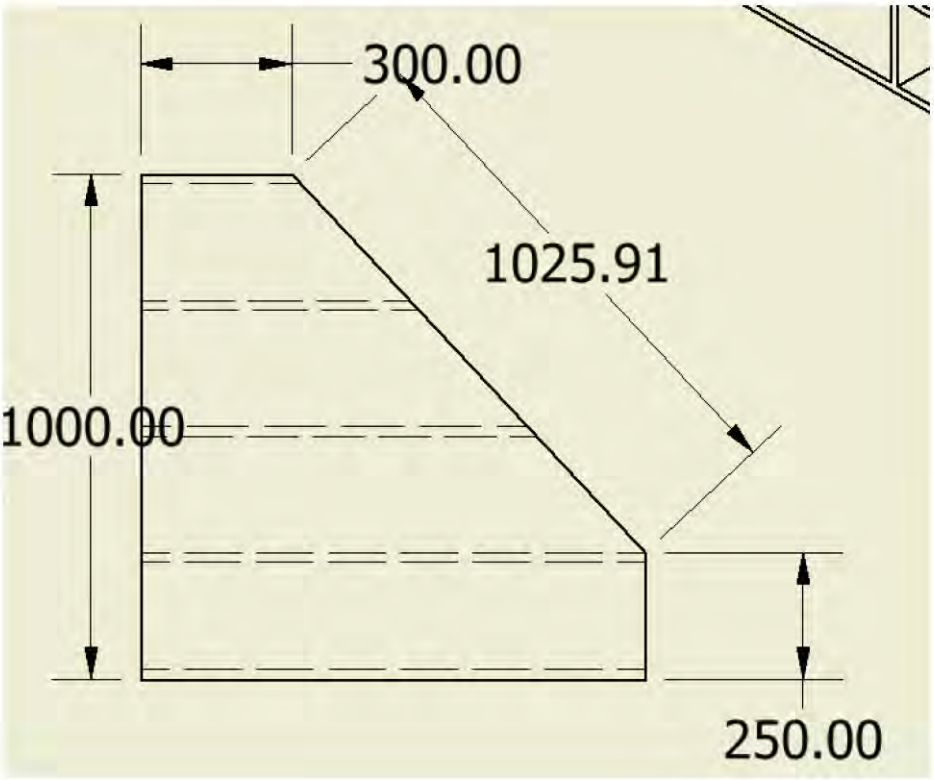
Back view



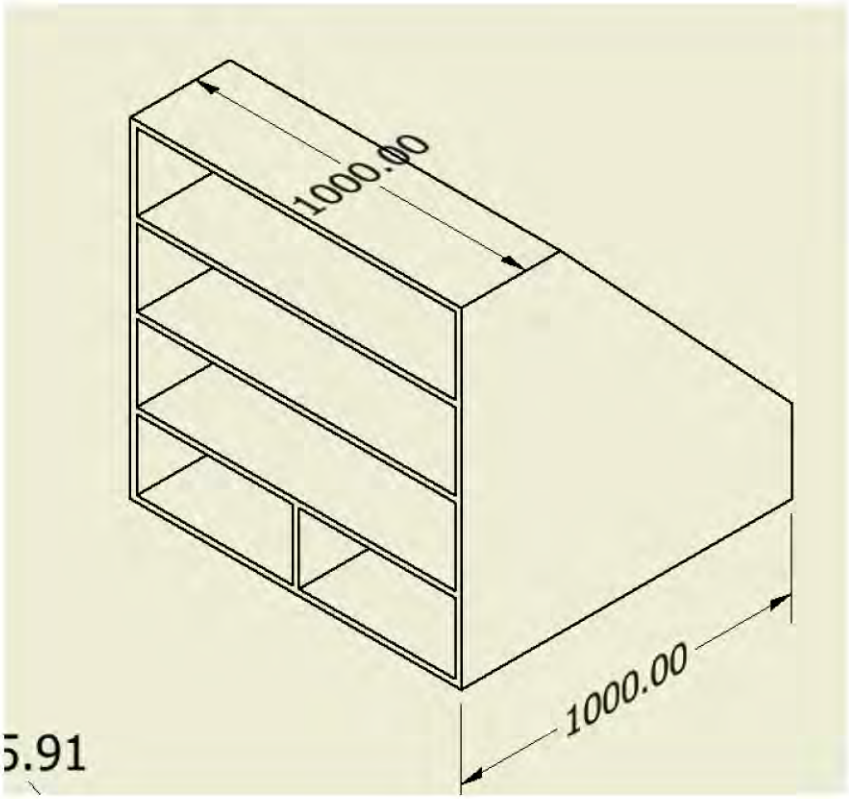
Front view



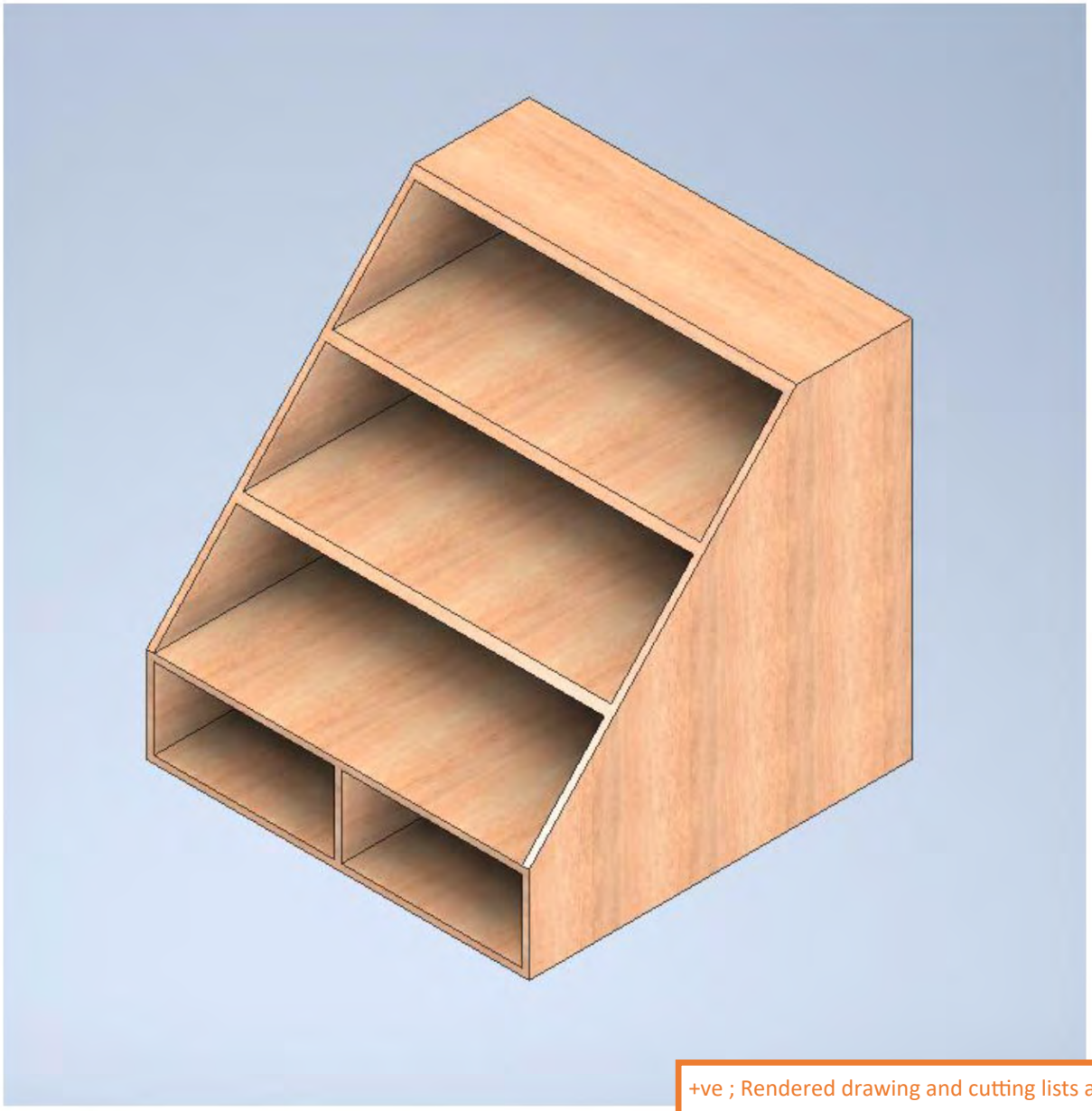
Side view



Angled view



Final rendered image of shoe storage



+ve ; Rendered drawing and cutting lists and costs show clear stages of planning

OFFICIAL

Cutting list

Part Name	No. Req.	Length	Width	Thick.	Material	Price /m	Cost
top shelf	1	1000	190	19	Pine	$ 5.30	$ 5.30
second shelf	2	1000	290	19	pine	$ 7.10	$ 14.20
third shelf	3	1000	290	19	pine	$ 7.10	$ 21.30
fourth shelf	4	1000	290	19	pine	$ 7.10	$ 28.40
base	4	1000	290	19	pine	$ 7.10	$ 28.40
drawer sides	4	1000	290	19	pine	$ 7.10	$ 28.40
drawer front back	4	500	290	19	pine	$ 7.10	$ 14.20
						TOTAL	$ 140.20

Ref: A1023156

Section 1: Product Record

-ve ; student has repeated components already presented in the introduction and development and planning section. These should be removed and reduced word count. This page and the following one about rough sketches and design.

Design Brief Specifications and Sketches

Design Brief

Design Criteria

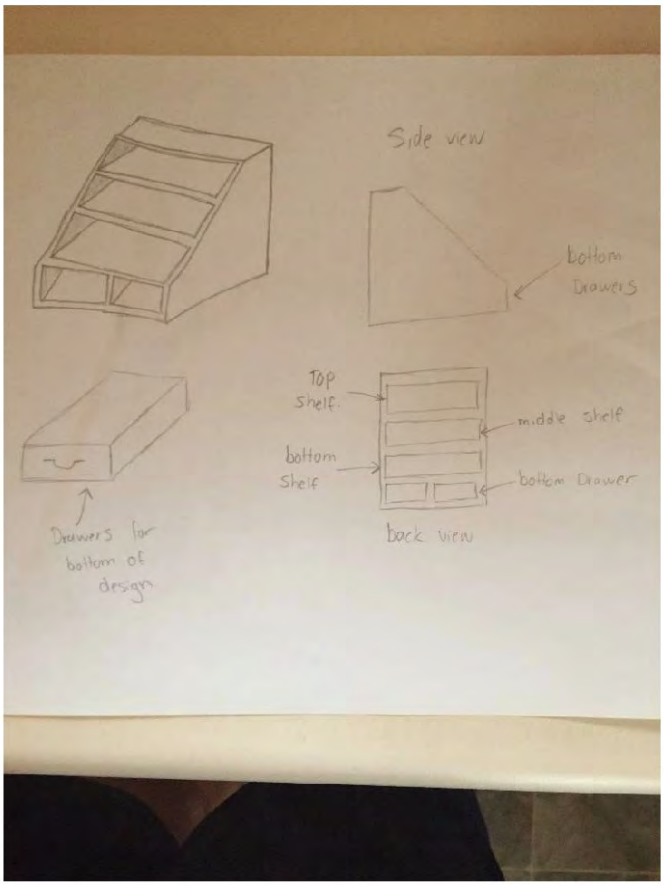
- Appropriate size to hold 10+ pairs of shoes
- High quality construction without visible screw/nail holes
- pine wood then staining it to create a colour that matches my room.
- Draws that can hold shoes and socks and flat surface that can have shoes on display.
- Laser print photo to resemble the shoe.

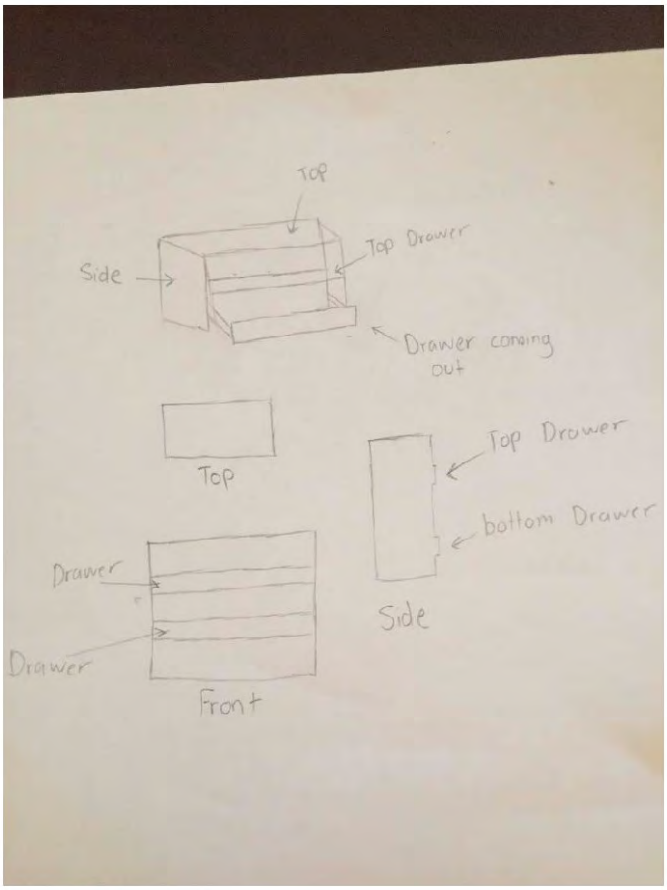
Design Constraints

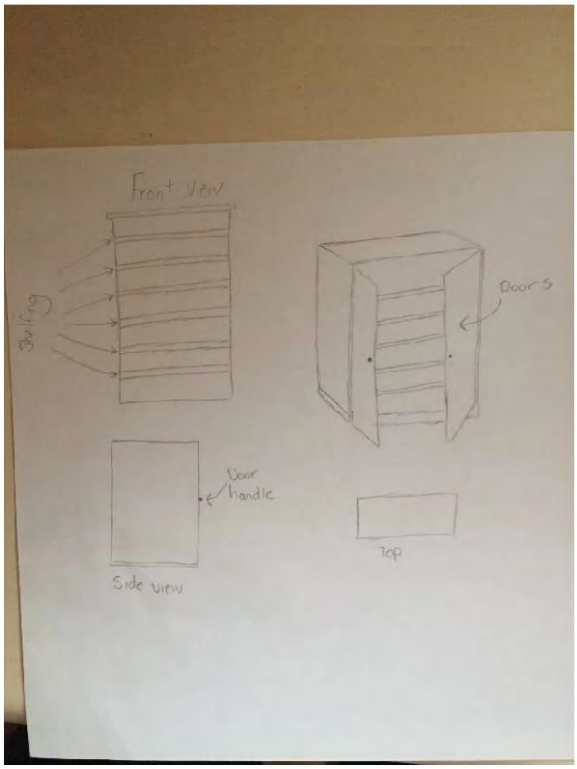
- length and width of the shoe storage must be at least 2000mm x 1000mm.
- The location is 3000mm in length and 2700mm in width so my shoe storage can be no bigger.
- I will be using the school materials of pine wood and staining and some additional funds of handles/hinges and drawer runners.

Drawings and sketches

-ve ; repeated evidence…. Not required.







-ve ; sectional heading—solution realisation / production required here

- & +ve ; helpful scaffolding for student but **assessment criteria** is not from **new subject outline.** If the student could have outline the assessment criteria at beginning of this section or at first image and then use the abbreviated code e.g. I1, I2, D1, D2, P1, P2, E1, where evidence for this fits with image and comment given. This will reduce word count.

Product Record Progress

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

To begin with I had to measure and then cut the lengths of wood required to build my sides. I had to cut 4 different lengths because my design is on an angle.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

After the completing of all my cuts my design looks like this. I did notice the wood was a bit bowed so the next step is to use the thicknesser and planner to thin in the wood and hopefully reduce the bows in the wood.

+ve good evaluative comment about processes and production techniques (I1, P2 and E1)

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

Using the planner to reduce the bows in the wood. This will make my product more aesthetically pleasing.

-ve ; wrong assessment criteria/ specific features

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

Using the thicknesser I am able to make my wood thinner and hopefully reduce bows in the wood.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

After thinning my wood, I then had to measure where I was going cut my biscuits cuts to enable my wood to stick together. Using the biscuit cutter, I cut 3 biscuits in each side of the piece of wood. Once I did that I then got a biscuit and put in the slot along with glue. And was that was completed I quickly got some clamps to ensure my wood was solid.

-ve ; wrong specific features used.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

This is now my product glued together. Now I have to cut the side off into a straight line to make it more aesthetically pleasing. To do this I will use the jigsaw as it's the most reliable tool.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

Using the jigsaw, I was able to cut a straight line as shown in the image across. As the line was a bit rough I decided to use the sander and sand down the line to eliminate all the bumps that were there and create a smoother surface.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

Once the sides of my shoe storage unit were complete I now had to work on creating my shelves. To do this I had to measure and cut out lengths of wood that were equal to the lengths of the side pieces. Once I finished measuring and cutting I biscuit cut them together and clamped them.

-ve ; wrong specific features used.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

As the side of my product was on an angle and my shelves were still straight I needed to cut my shelves on a 64-degree angle to ensure they would match the side pieces and it would look more aesthetically pleasing.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

Once the shelves were complete I then glued them to the side pieces. To do this I needed to use the domino cutter and cut dominos in the sides of the shelves and the side pieces.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

Unfortunally when I was domino cutting the top shelve I went in to far and quick and because the wood is at its weakest at the end points the wood gave way and broke off. To solve this I will have to glue the piece back on and then sand over it in the hope that people wont realise the problem.

Date of image:

Tick one or more relevant assessment criteria the image demonstrates and comment below:

- ☐ Testing, modification, and validation of ideas or procedures (PI3)
- ☐ Application of skills, processes, procedures, and techniques to create a product or system to a chosen standard and specification (Pr1)
- ☐ Use of resources, equipment, and materials to create a product safely and accurately (Pr2)
- ☐ Development of solutions to technical problems that may arise during product or system realisation (Pr3)
- ☐ Evaluation of the effectiveness of the product realisation process (E2)
- ☐ Reflection on materials, ideas, or procedures, with recommendations (E3)

Comment:

This is what the final design looks like after all the shelves have been glued in. As you can see there are four shelves and at the bottom there is supposed to be two drawers, but unfortunately my bottom shelve is two low and the two draws I made are two big and with limited time remaining I made the decision to not include the drawers into my design just because there isn't much time remining. To finish off my design I will cut a 2 pieces of ply wood for the base and back of my product and once that is completed I will have completed my product.

Evaluation

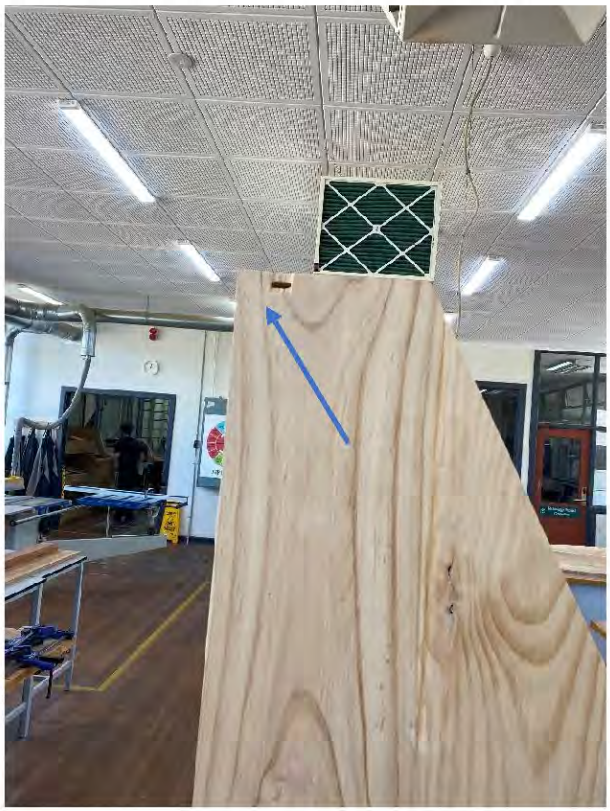
+ve ; clear heading for final component of Design and realisation process

Throughout the construction of my product I found that time management was something I needed to improve because I spent majority of my time making sure the placement of my domino holes were accurate, as shown in **figure 1.**

Figure 1: Measuring domino holes

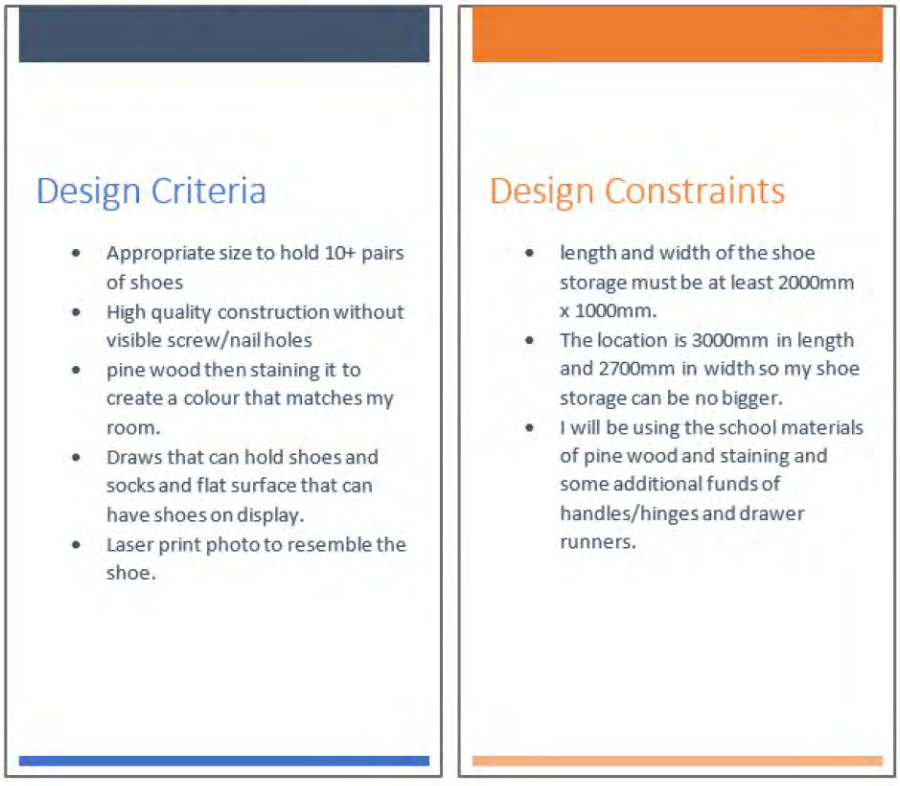
Once I had completed my domino cuts I found the next day that the domino hole I cut had gone right through the wood, as shown in **figure 2.** This was because the hole was cut at the end of the wood which is the weakest part, and the tension became too strong and with the slightest bump the remaining bit of wood had fallen off creating a hole through the wood. To overcome this obstacle, I will glue a small piece of wood over it and then sand it down to ensure no gaps aren't evident.

Figure 2: Hole in wood due to domino cutting



+ve ; good use of images to explain challenges / errors made and how they were overcome

Figure 3: Design Brief



Design Criteria

- Appropriate size to hold 10+ pairs of shoes
- High quality construction without visible screw/nail holes
- pine wood then staining it to create a colour that matches my room.
- Draws that can hold shoes and socks and flat surface that can have shoes on display.
- Laser print photo to resemble the shoe.

Design Constraints

- length and width of the shoe storage must be at least 2000mm x 1000mm.
- The location is 3000mm in length and 2700mm in width so my shoe storage can be no bigger.
- I will be using the school materials of pine wood and staining and some additional funds of handles/hinges and drawer runners.

Above in **figure 3** is my design brief. Unfortunately, my product does not meet all of the design criteria's. Below in **figure 4** is currently where my product is at. In **figure 4** its evident that no drawers have been built and no staining, or laser printed images are completed. I have also edited the size of the unit from 2000mm x 1000mm to now 1000mm to 650mm.

Figure 4: Current image of my product

+ve ; related back to design criteria with images and comments.

As you can see in **figure 5** my solution will definitely exceed my needs as its clearly evident that this shoe storage unit will hold more than 10+ pairs of shoes. Once I have completed constructing my drawers and include them into my final solution I will have more than enough storage for shoes, socks and whatever else I want to include.

Figure 5: My solution

Due to COVID in 2020, the student evidence was assessed knowing not all students will have a completed product, and would not be disadvantaged. Assessment of production was about what they were able to display with the time available.

This student achieved a B– for AT2