

No part of the candidate evidence in this exemplar material may be presented in an external assessment for the purpose of gaining credits towards an NCEA qualification.

AS91359

Demonstrate understanding of the role of material evaluation in product development

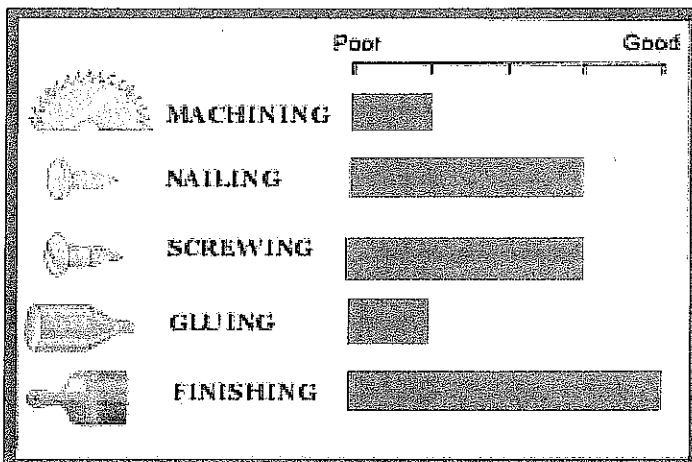
- researched materials
- explained the performance properties and related these to the specifications required for their product
- performed tests on a range of materials that could be used and identified the results
- described how the information gained allowed them to determine the suitability of the material for their outcome
- described the results of their testing in their report in a table format
- Described in their own words evaluation procedures and how they would use the information gained to inform the choice of materials used.

<http://www.tenonmanufacturing.co.nz/radiata-pine/properties.aspx>

Researched Materials

Pinus Radiata - Radiata pine is grown commercially in New Zealand as an exotic species from the Monterey peninsular in California.

Performance Properties - Radiata pine is recognised internationally as being suitable for a wide range of uses; due to its favourable sawing, drying, treatment, and machining characteristics. Other reasons include its ease of finishing, and attractive texture and appearance.



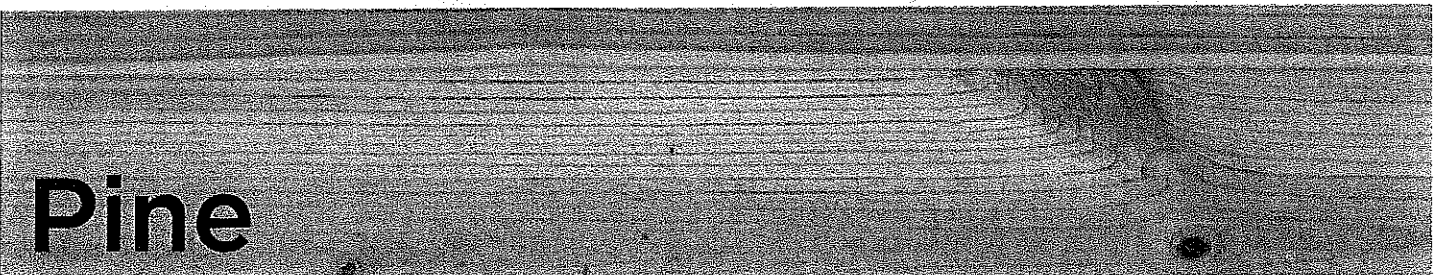
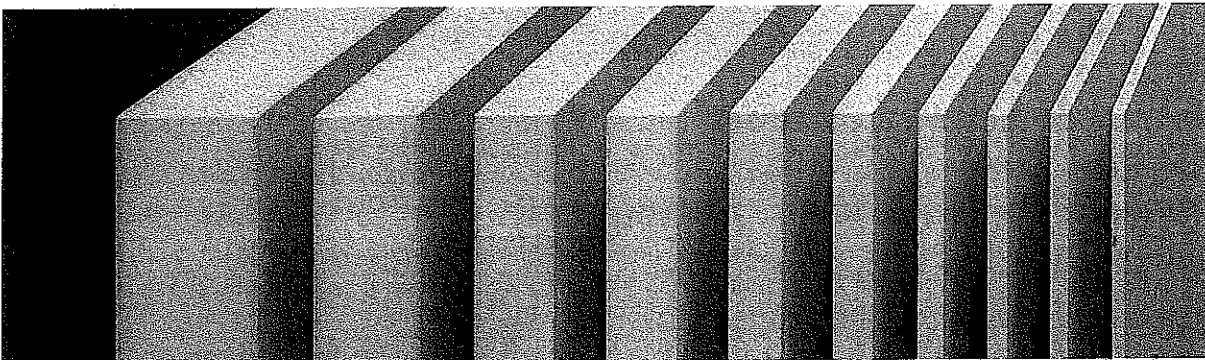
I used Pinus Radiata for my project because it has a nice natural grain, it also is reasonably strong so it will preform to the standard that it needs to. I can stain it to the colour I want so it will suit the other furniture. It is easily Machineable so it is good for my dowel joints and wood glue and dowel is a firm joint. The firm joint and reasonably strong wood means that my project will be strong enough to fill its need.

Test Materials

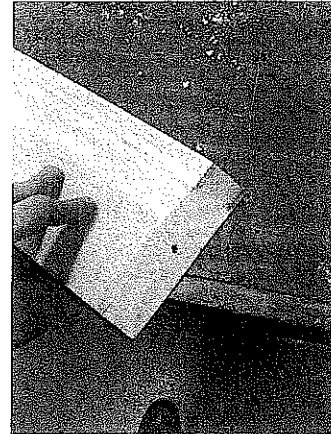
I tested out MDF as a material but it would've been too hard to source MDF that thick and it wasn't as aesthetically pleasing. My stakeholder wanted something that could be stained and was nice to look at for her wall so MDF did not fit the purpose

I tested Rimu as a material but rimu is expensive and would be harder to source than pinus radiata. Rimu is aesthetically pleasing, can be stained and is very strong but was outside my projects budget.

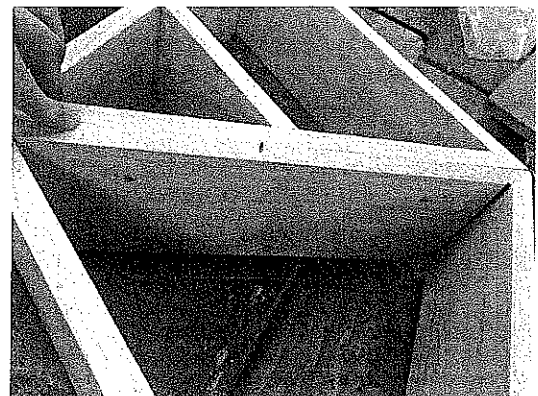
I tested Pinus Radiata as a material and it fit my stakeholders description. It is reasonably strong, can be stained, is reasonably strong and is aesthetically pleasing with the nice grain. I decided to use Pinus Radiata for my project.


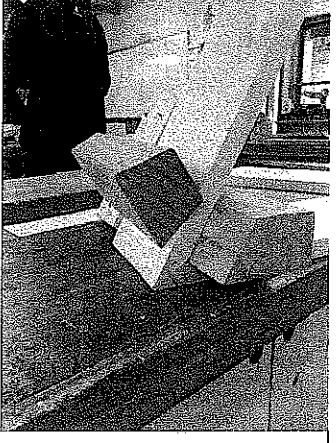


- This is me pilot drilling my dowel holes so that they go through properly and in the correct spot.
- I was testing to see if my holes would be drilled in the correct spot using my jig
- 100% independent because it was in my jig when I drilled my holes
- I used the correct PPE and had 360 awareness
- This test shows me that pine was a good choice for my project because it was nice to machine and made it easier to drill pilot holes



- This is my centre piece of my project after it has been joined together.
- I was testing to see if my dowel holes were lined up properly so that my project would sit nice and snug together.
- 100% independent because I drilled the holes, glued the dowels and clamped the project.
- I used the correct PPE and had 360 Awareness
- This test helped me realise that pine was good for my project because of its high machinability and I could manipulate it easily



<p>This photo shows the teacher holding my material in my jig while I take a photo</p>	<p>I was testing how my jig would work with my work pieces in</p>		<p>95% independent because she held them in place while i took a photo, It was accurate because my jig was made snug</p>	<p>I had 360 awareness</p>
<p>This is a photo of my wood in the jig and my marking out so that I know what angle to have my drill bit on</p>	<p>I was testing to see if I could put the drill bit in on the correct angle</p>		<p>100% independent and it was accurate because I used a rule and a square</p>	<p>I had 360 awareness</p>

- Described in their own words evaluation procedures and how they would use the information gained to inform the choice of materials used.

The evaluation procedures I used to test my materials were. Strength, Aesthetics, Machinability and price. This test of materials helped me confirm my choice of pinus radiata over my other options like mdf and rimu. It did this with some of the crucial information like how good the finish comes up. Because it finishes nicely means that my stain will look better over top of it than other materials. The only other alternative would be rimu as it finishes nicely and is strong. The only negative on using Rimu is that it is harder to source and is more costly. This information I have gathered through testing has shown me that pinus radiata was the correct choice of material for my product.

product development (91359)

LOW ACHIEVED.

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria.

Issues from the Specifications

Where a candidate has provided a brief report, the report should not be penalised because of length.

Candidate work in excess of 10 pages must not be marked.

Where a candidate has used a small font, markers should make a judgement about where to stop marking. This judgement should be made relative to 10 pages of Arial 12-point font.

Where work is illegible, it cannot be marked.

Digital submissions that cannot be read cannot be marked.

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the role of material evaluation in product development involves: explaining the relationship between the performance properties of materials selected and the performance specifications of a product describing different material evaluation procedures undertaken to determine the suitability of materials for use in the development of a product describing the knowledge and techniques underpinning the material evaluation procedures that were used to support the material selection decisions in the development of a product.	Demonstrate in-depth understanding of the role of material evaluation in product development involves: explaining why different material evaluation procedures were undertaken to determine the suitability of materials for use in the development of a product explaining how knowledge and techniques underpinning material evaluation procedures were used to support the material selection decisions in the development of a product.	Demonstrate comprehensive understanding of the role of material evaluation in product development involves: discussing how the relationship between the evaluation of materials and a product's design (including maintenance and disposal considerations) influenced material selection decisions during the development of the product.

The student explained the relationship between the performance properties and materials selected. There were descriptions of different material evaluation procedures undertaken and knowledge and techniques underpinning the material evaluation procedures used to support the material selection.