

	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to undertake brief development to address an issue within a determined context.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• establishing an issue, identifying and explaining related context considerations</li> <li>• determining a need or opportunity that resides within the established issue</li> <li>• ongoing reflection of views of key stakeholders associated with the need or opportunity and wider stakeholders associated with the context</li> <li>• ongoing reflection of context considerations, including the social and physical environment where the outcome will be developed and situated</li> <li>• developing a final brief that allows judgement of an outcome's fitness for purpose in the broadest sense.</li> </ul> <p>This student has developed a brief for building an electric guitar to solve the issue that buying an electric guitar is very expensive for beginner musicians.</p> <p>They have established an issue (1) and identified related context considerations (2), and the context considerations have been explained as related to the established issue. They have determined a need or opportunity that resides within the established issue (3).</p> <p>Evidence is seen of ongoing reflection of views of key stakeholders associated with the need or opportunity and wider stakeholders associated with the context (4). The student shows ongoing reflection of context considerations, including the social and physical environment where the outcome will be developed and situated (5).</p> <p>The student has developed a final brief that allows judgement of the outcome's fitness for purpose in the broadest sense (6).</p> <p>To reach Merit, in-depth development of the brief is required. To demonstrate this, evidence of deeper interrogation of how and why the specifications allow judgement of the outcome's fitness for purpose in the broadest sense is needed.</p>

Issue/Opportunity	Social Environment	Physical Environment	Access to Stakeholders	Feedback	Feasibility
<b>Good quality instruments cost too much. The opportunity of doing this is I could start a business constructing custom made instruments and selling them.</b> (1)	This will be for people that would like to have a custom made instrument (2)	It will be developed at school for the first time couple of times (2)	Go to a person that builds certain types of instruments like a guitar and ask for advice. Stakeholder would be people in later years which will be the customs if I pursue this idea	<i>I think you would need to be a specialist in building one instrument otherwise you would need to have too many items that were required for each instrument. It would be costly.</i>	This is something that I could possibly work with as a guitar. Good quality guitars are very expensive and I would like to see if there is a possibility to make something that is good quality that costs less money as the issue is that there are good quality guitars.
<b>Wheelchairs wheels aren't that great going upstairs. Solve it by making them able to go upstairs</b>	I will develop something that will allow the wheel of the wheelchair to go upstairs	It'll be used for people that aren't able to get upstairs easily while in wheelchair and there's no lift	Go to people that design wheelchair, ask people that use wheelchairs	<i>This is a complicated concept. You would need technical knowledge, physics, safety, balance and understanding pivot points as well as motion.</i>	This is an awesome idea but sadly someone has beat me to this and has already invented a way to allow wheelchairs to go up and down stairs.
<b>Have a string instrument that can change to different types of string instruments so people don't have to buy heaps of different instruments</b>	I will invent a type of instrument that allows it to be able to swap instrument, it will be used for people who have a passion in different instruments and is able to save money by not buying different string instruments	It can be used anywhere and will be designed and built at school.	Go to people that build different types of string designs	<i>Would the instrument end up sounding too similar. To achieve this you will need to alter the neck significantly. Even with these alterations, will you achieve a drastic sound difference. It sounds like quite a complicated concept.</i>	This is possible but is a difficult. The main problem was that I don't know how I can switch strings in a fast time as it wont work unless you have separate necks for each instrument and keep the base.
<b>Roof racks for surfboard, find a way to get them cheaper, protect your board and car, produce little drag and no noise issue.</b>	People who need roof racks on the car are able to find good quality cheap ones that do the job of storing things on top of the car well.	It will be remade at school, and it will be used when something doesn't fit in the car	Talk to people who don't and do have roof racks and ask what they would do if they had the chance to redesign them	<i>This is a good idea. It may end up being a simple concept but materials, salt resistance, safety and security may all be factors you need to investigate.</i>	I have researched this and there's some for \$40-\$50 so it has pretty much been invented in a way that I couldn't possibly make cheaper.
<b>Find a way to stop or slow done the wear of the tread deep on vehicles</b>	I would create something that slows down or stops tread depth so people don't have to spend heaps of money in buying new tyres.	It would be created at school and people who drives a vehicle use it	Talk to people who have tried this, go to mechanics and get their perspective on how it could be changed	<i>Rubber is used as it creates grip without maximum wear. You would need to think about traction, safety, balance of tyres, traction in wet conditions.</i>	It appears that trying this which is an amazing idea turns out to be impossible for the time being as you need rubber tyres so you have grip on the road and traction.

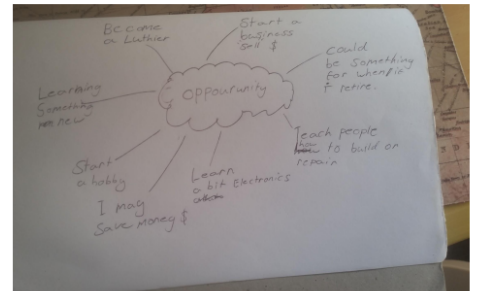
The issue/opportunity I have chosen is how to build an electric guitar that is good quality but cheap. The opportunity of building an electric guitar is that I could start my own little business that builds custom made electric guitars.

(3)

The reason why I have chosen this is because I think this one will be the best fit for me and my stakeholder as we have a passion for music.

The issue that I have concluded is that the price of new guitars that are over that are around \$500 and more are too much for a good quality electric guitar. I believe that you can make a Electric guitar that is cheaper and is worth around the same price as one that is worth \$800

The opportunity that I gain by doing this is I will be able to learn the ropes of building a custom made electric guitar which means that in later years I may start a business or a little hobby of building custom made guitars or repairs.



Summary of Key Design Features from Existing Ideas Research			
Positive Features	Things to Avoid	Factors to consider for my own design	Key Stakeholder Feedback to consider
The type of artwork in all the guitars are awesome as it adds their creativity which is why I'm inspired to do something like that. All the products used are able to be bought in NZ.	To try and save as much resin as possible in case of a muck up as it's expensive. Choosing wood that is structurally solid with no areas of weakness.	To do lots of research in building the guitar. Find out what could go wrong and then how to avoid these issues. Which is why I'll be going to a person that builds custom made guitars Learning how to pour smooth resin.	<i>The shape of the guitar needs to have smooth and rounded points and a rounded base. I like the idea of using resin but want to make sure there are limited or no air bubbles. I would also like it to be flat and not contoured at the edges. The colour is important if using colour pencils or resin.</i> (4)

I have interviewed my Stakeholder and gathered enough information for now to evaluate what the stakeholder would be when in the stage of planning.

(4)

I believe Stakeholder is describing a Fender Telecaster which is acceptable to make. My stakeholder doesn't mind if it's made out of pencils or the river like one. Stakeholders would like the body to have more curves. Must be completed by the end of 2020. Stakeholder has left me with this decision which will be 6 strings. Stakeholder likes the one in the first picture above, which is maple slab. I will have standard steel strings. The guitar may have a pickguard and will negotiate with stakeholders. May have dots on fret depends how I'm building it. The neck design will be my choice as the stakeholder has left me in charge of what type of neck, which may be custom built or bought on trade me depending on which is cheaper. Stakeholders would prefer the fluoro green colour first then the blue, if building the electric guitar out of pencils Stakeholder would like the pencil colours to only be blue, Green, yellow, and red. If doing the pencil guitar and only using those colours from stakeholder, stakeholders' money cost may increase as you'll have to buy a full box of different colour pencils which will minimize the amount of the required pencils resulting in the payment to increase. With the research I have done I may have to do the first or second option if stakeholders are wanting just those colours. Stakeholder would like a light stain to show the grooves and shine of the guitar. The rod of the guitar will be at the top as requested from the stakeholder. Stakeholders would not like a case as they believe that it will be safe. Stakeholders would like a fender type body. The stakeholder would like my signature.

**Evaluation and Summary of Location Research: what have you learned from your research? What are the key factors you need to consider? How do the locations impact on your design? What are the most important priorities in each of your locations? Justify your decisions using your research as evidence.**

The information I have gathered information for now. is location wise. There may not be enough room to build my design as there are too many people in the class. Which could cause me to not have enough room to build. To solve this is by either, Getting to class first, or have a permanent section on where I can build or go at lunch. The most important location for me is possibly the bandsaw and near the sanding area as those will be the two places that I will be near. The evidence I have gathered so far is that the location will be fine as long as I have enough space. This means that I have a high chance of building this electric guitar. The only problem is the school closing down

(2)

## Exemplar for internal assessment resource Technology for Achievement Standard 91608

<b>Initial Brief</b>	
<b>Context</b>	Building Electric Guitar. Gaining exprenness
<b>Issue</b>	No issue The issue is that electric guitars that are good quality are too expensive, finding a way to build one to save money or increase the value so there is profit if sold.
<b>Need/Opportunity</b>	The need of building an electric guitar is that I will be gaining knowledge on how to build something that interests me ,and the opportunity of building an electric guitar is that I have the opportunity to be able to build more in the future and start a little or big business of building guitars.
<b>Conceptual Statement</b>	Building an electric guitar, Gaining new knowledge in building one which is beneficial. Don't know if the guitar is going to be made out of.  Building an electric guitar with a river filled with resin. This is for my stakeholder who likes electric guitars. It will be started in maybe late term 2 or the start at term 3. It will be built at school and maybe taken to a specialist that builds guitars for some assistance. I asked my stakeholder what would be a cool project to make, and what there passions are, which was music, which is why i will be creating a electric guitar.
<b>Functional Attributes</b> (Explain why you have chosen each of your attributes)	<b>Aesthetic Attributes</b> (Explain why you have chosen each of your attributes)
It needs to be able to play a song. The electric guitar needs to make noise from the amp. The wood that will be using needs to be sanded so there's a low chance of getting splinters. There can't be any dents in the electric guitar until it starts to get some wear in tear in the later future.	Needs to represent a river, Needs to have resin in it or pencils not to sure what the materiale is at this stage. At the end result it needs to be able to produce sound.

Some of the research i have gathered is that when people build an electric guitar they don't like building the neck as that is the hardest part. Since this is tru I have thought about and talked to my stakeholder who agrees that I will spend Three and Half weeks trying to make a neck. If I do not complete this in that time due to it being too complicated then I will have to buy a premade neck.

I have interviewed my wider stakeholder who builds and repairs guitars. He was unable to answer all the questions as there were too many and the answers would be too long. What I did get is, "Building a neck is very hard and wouldn't recommend doing it as it requires more than measurements but the feel of how to build it and years of experience." He also recommends building a plain Guitar without resin as he doesn't use resin." Some of the main tools I need is a router, bandsaw, and a sand belt as these will help. Also he recommended that I buy a second hand electric guitar and use those parts from that to save money and have a template. He also recommended a website called StewMac which he says is everything that I will need for parts. He also said that this is a great way to start a career and that is what he did when he retired.

I have considered what I must do and overall I still would like to build at least with resin as I that I was one of the main reasons in building this for my stakeholder. I would still like to learn and give the neck a go, possibly by buying a second hand guitar and using some of those parts, this will help save money.

The Material I will be using for the build is a quilted Maple slab  
The reason I will be using this is because my stakeholder likes this and is the best material to use to make an electric guitar.  
MDF: I will be using MDF to make a template of the body and where to drill in. The reason why I will use MDF is because it's simple, cheap to be able to have a template.

### Final Brief

<b>Context</b>	Building a electric guitar
<b>Issue</b>	Good quality electric guitars are expensive
<b>Need/Opportunity</b>	Finding a cheaper way to get a electric guitar that is a good quality guitar. Then maybe I can start business.
<b>Constraints and solutions</b>	<ul style="list-style-type: none"> <li>• Soldering is something I have never done before. I have been practicing and the teacher will help to make sure my wiring is safe and to standard</li> <li>• Building the mold for the parts is hard but I will have help from teacher and my Dad</li> <li>•</li> </ul>
<b>Conceptual Statement</b>	I am building an electric guitar from maple wood and a pre-made parts that is able to produce a good sound. Building one is time consuming but hopefully it will end up being less cost than buying one

## Exemplar for internal assessment resource Technology for Achievement Standard 91608

- The Material for the body will be Quilted Maple Slab which I have got from the recycled timber yard here in town. It will be a humbucker because they sound thicker where a single coil sounds lighter and brighter. Humbucker guitars are usually used for more rock, jazz.
- The neck will be bought pre-made which will be maple including the plate to hold guitar neck, Tuner/Pegs to hold the strings, string tree to hold the strings for a better tone. It will be able to play a song because all the parts will be securely joined and it will be tuned first and checked by the technician here at school.
- The guitar will be sanded and polished it to get that shine and make it easy to hold (not rough with any splinters.) I will use the sanding equipment in the workshop for this and get it polished with layers of polyurethane varnish. This was tested in class. the polishing will protect the timber and make the guitar last longer
- The guitar will be mostly made at school. My teacher is helping and Dad who has given lots of feedback. First I will need to tape the inside with copper tape leaving 3mm out on the edge to allow no EMI and wires to connect through the holes. Check with a multimeter. I will then need the parts which are the humbucker, tone, volume, bridge and the jack which then i will solder. After soldering and installing the Humbucker and bridge i will then be able to attach the strings from the bridge to the guitar. The joint that I will be mainly using is a lap joint as that is very important as this will connect the body and neck securely. Another is putting a casing around the inside which will also be a Lap Joint.
- The design on the body needs to represent a river. The maple will have a channel carved in it that looks like a river flowing. This will have have resin in it for colour.

6

Consideration	Description	How it relates to your project?	How will you know you have achieved it?
<b>Technical acceptability</b>	The technical acceptability, there's a high chance of building this without any problems if I do my research well.	The price will be expensive, but I will try my best to lower as much as I can without compromising quality.	By building the project with a little bit of assistance
<b>Social acceptability</b>	This project is socially acceptable if people who play the guitar want to buy one and can use it safely	Because people won't use an instrument that is not comfortable to use or looks good. I also don't want anyone playing it to be hurt.	By completing the project and checking all the wiring so it is acceptable to people
<b>Sustainability of Resources used</b>	The material I will be using is wood and guitar parts	I could possibly find second hand parts and upcycle the timber	When the guitar is built ill be able to add the full cost.
<b>Ultimate Disposal</b>	When the product is finally out of use, depending if it was wire fault then you can save the body of the guitar and replace wiring	If you want to build another guitar you can use the scraps from the other guitar to save money.	By saving money.
<b>Determination of Outcome Life Cycle</b>	The life time of this project should last forever if it's looked after	This means that if i was starting a business it would be for the company as it will show a long lasting guitar build. This also means that you won't have to buy another guitar.	By waiting in time to see if the electric guitar is broken
<b>Cultural and Ethical appropriateness of testing procedures</b>	There will be lots of research and testing when building this as I don't want to butcher the main resources otherwise I will have to buy more/.	The resources for testing will be scrap wood or cheap pine so can get abase of how to build the electric guitar	When I have find what I needed to know by ethir making a little model or research
<b>Maintenance</b>	The tools I will be using will need to be looked after and well maintained as if the equipment is damaged in any way then it becomes a hazard to the person who is using or other people around.	If the maintenance is poor this could lead to spending more money into fixing the equipment.	By knowing that the equipment and materials are not damaged in a way that could lead to even more damage to the equipment, you, or people around.
<b>Health and Safety</b>	While i'm doing this project I will be needing to tie my hair back, wear safety glasses, and earmuffs, also when sanding have the dust filter on.	The price is irrelevant to health and safety as the equipment is at school so I do not need to buy anything.	I will know that I have achieved this by seeing if I have damaged my self

6