

# Home Learning 2020

Design & Technology

Non-Exam Assessment (NEA) practice



# Week 1 – Lets start



## DESIGN PROCESS



A.McARTH D+T 2018

It all starts with thinking about what problems there are and then move onto the needs of a potential user.



Week 1 – Looking for problems in  
the given context – 1 Page

This is what the exam  
board says you need to  
do...

Identifying and investigating design possibilities.

## YEAR 10 – A01 a (10 Marks)

### Key words for this section:

Relevant research / Effective analysis / Range of problems identified / Needs wants and values identified

- The design context must be analysed critically.
- There will be a number of possible design tasks identified.
- Detailed and relevant research will be evident
- Consider the needs and wants of users
- Analysis of existing products
- Research into past / present professionals

### 3 – 5 Marks

- Identified some opportunities for the development of designs within the prescribed context.
- Undertaken research and investigation, generally linked to the context and, where appropriate, the work of past/present professionals and companies.
- Undertaken a partially effective analysis of information, though the needs, wants and values of potential users may not have not been fully considered.
- Identified some problems/opportunities which partially inform the development of possible design briefs.

Apprentice  
Designer



### 6 – 8 Marks

- Undertaken a generally effective identification of opportunities for the development of designs within the prescribed context.
- Undertaken relevant research and investigation, linked to the context and, where appropriate, the work of past/present professionals and companies.
- Undertaken a mostly effective analysis of information, reflecting the needs, wants and values of potential users.
- Identified a range of problems/opportunities to inform the development of possible design briefs.

Skilled  
Designer



### 9 – 10 Marks

- Undertaken a **comprehensive** and **effective** identification of opportunities for the development of designs within the prescribed context.
- Undertaken **comprehensive, relevant** research and investigation, **clearly linked** to the **context** and, where appropriate, the work of **past/present** professionals and companies.
- Undertaken an **effective analysis** of information, reflecting the **needs, wants** and values of **clients** or potential **users**.
- Identified a **range** of problems/opportunities to clearly inform the development of possible **design briefs**.

Master  
Designer



**The following is the context you need to consider:**

**Sustainability** – Design a creative and innovative storage solution / Product for somewhere in the home which will be made from fully recyclable / reclaimed materials.

# Week 1 – What do I need to produce...



All the sheets you are required to complete are in a power point 'Student Booklet' for you to fill out.

- You can fill them out in the power point Student Booklet
- Use paper, pens and pencils to complete the work, you will find layout examples to help you.
- Or print out the sheets and write on them... just remember how much ink this will take.

# Week 1 – Analyse the context

- Start with keywords
- List as many problems as you can think of
- List as many products that are used to solve the problem now
- Ask your parents to think about the context and give you keywords, problems and products.



**The following is the context you need to consider:**

**Sustainability** – Design a creative and innovative storage solution / Product for somewhere in the home which will be made from fully recyclable / reclaimed materials.



# Analysis of the Context – Sustainability



## Potential Problems I have found for this brief:

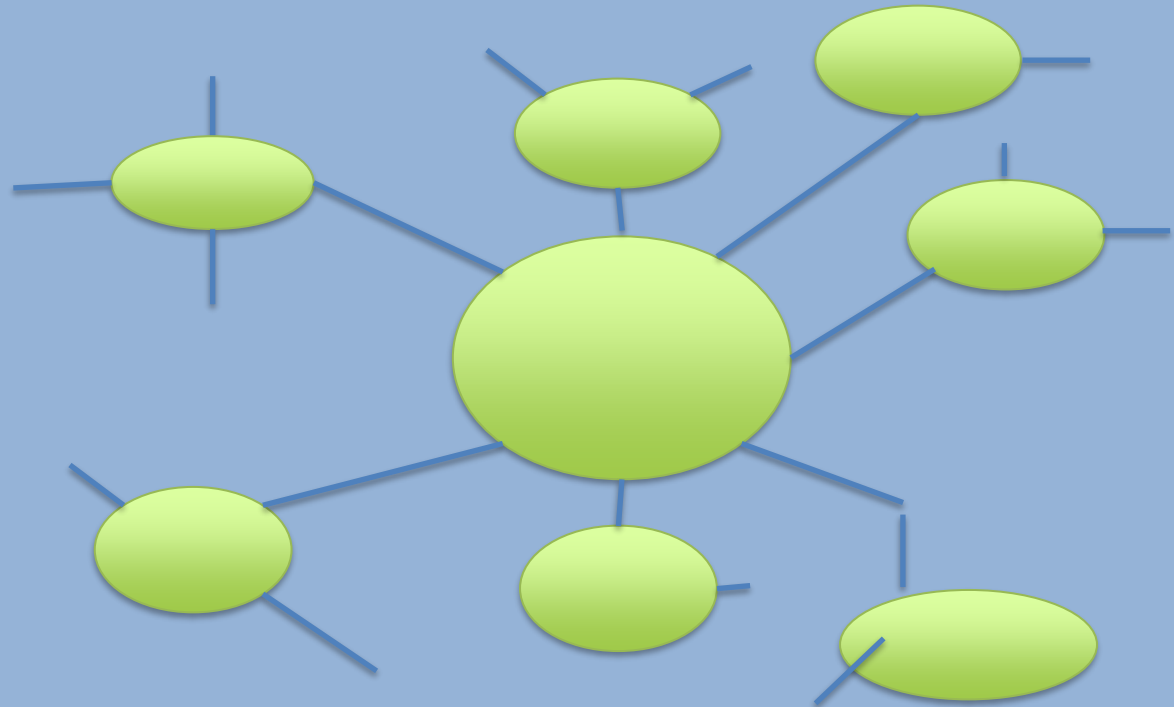
You need to list all potential problems you could see coming from each brief.

- 1.
- 2.
- 3.

## Potential Products I have found for this brief:

You need to list all of the potential rough ideas for products you can come up with for each brief.

- 1.
- 2.
- 3.



# Analysis of the Context layout on paper



## Potential Problems I have found for this brief:

- People not being able to improve at certain skills
- People not understanding certain aspects of a game / sport
- Getting people interested in certain games / sports

## Potential Products I have found for this brief:

- A product which helps improve a certain skill within a sport or game
- A product which informs someone of a new sport
- An aid which helps disabled people to get involved with a game or sport

# Week 2 – The User – 1 Page

This week you must you must find someone in your household, that will eventually by the user for the product you design.

# The user

- This week you need to complete a profile of your user.
- The following sheet gives you a sample of what type of information you need to find out.
- Remember to write your own questions using the keywords and questions to give you ideas.
- Complete the user profile sheet.

# User Profile / User Needs & Values

You must ask important questions which link to products / designers / companies they like or have an interest in.



## User profile:

- Information about your user / Age/ Interests or hobbies / Home life / Who they live with? Do they have a job?
- Any images which shows the users favourite products.

## Questionnaire:

Looking at the three contexts, which one does your user prefer? And why?

What problem / problems does your user want you to explore / solve?

**Now you need to find out as much as you can about the problem....**

Where is it? / Who does it effect? / Why is it a problem? / How might it be solved? / What products are involved? / Why hasn't it already been solved?

**Now you want to find out a bit more about what will make the product work for the user...**

**Function:** How should it do it? / What does the user want it to do?

**Form:** What are your user's favourite Brands / Colours / Favourite products? / Traditional, Modern, Retro.

**Cost:** How much would your user be willing to spend to solve this problem? / Why would they choose to spend this amount?

**Environment:** Where would this product go? / Transportable? / Fixed? / Type of surface? / What other product are nearby? / What colours, shapes, materials are there nearby?

**Size:** Are there any measurements that will be important to this design?

**Materials:** What materials do they prefer?

## Photo Of User

## Level 6 and Up:

**Talk about the user's values.  
What do they truly value as a person.  
Do they Recycle? Are they Vegan?  
Do they buy sustainable products?**

## Conclusion (User Needs / Wants):

Explain the problems your user has found.

What have you found out from the questionnaire? (Colours/Shapes/Function/Cost etc....)

**What does you user want from the product you are going to design? (Size/Shape/Colours etc...)**

**What do you need to find out next? Show the examiner what to expect on the next pages.**

# Questionnaire / What to ask your user?



Looking at the three contexts, which one does your user prefer? And why?

What problem / problems does your user want you to explore / solve?

***Now you need to find out as much as you can about the problem....***

Where is it? / Who does it effect? / Why is it a problem? / How might it be solved? / What products are involved? / Why hasn't it already been solved?

***Now you want to find out a bit more about what will make the product work for the user...***

***Function:*** How should it do it? / What does the user want it to do?

***Form:*** What are your user's favourite Brands / Colours / Favourite products? / Traditional, Modern, Retro.

***Cost:*** How much would your user be willing to spend to solve this problem? / Why would they choose to spend this amount?

***Environment:*** Where would this product go? / Transportable? / Fixed? / Type of surface? / What other product are nearby? / What colours, shapes, materials are there nearby?

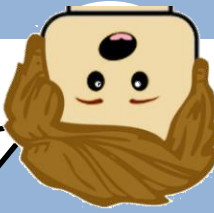
***Size:*** Are there any measurements that will be important to this design?

***Materials:*** What materials do they prefer?

***Other:***

# EXAMPLE PAGE

You must ask important questions which link to products / designers / companies they like or have an interest in.



## User profile:

Mr Mason is a Design and Technology teacher who loves his job and design. He also enjoys Music and Sport, whether it is playing or watching. Mr Mason is a road cyclist and enjoys playing football. He also goes to the gym twice a week. He loves being outside and has a connection with nature. He used to be a DJ at University and enjoys producing house music in his spare time to relax and unwind. Mr Mason used to play the guitar and sometimes picks it up.

## Questionnaire:

Where is it? / Who does it effect? / Why is it a problem? / How might it be solved? / What products are involved? / Why hasn't it already been solved?

Looking at the three contexts, which one does your user prefer? And why?

What problem / problems does your user want you to explore / solve?

**Function:** How should it do it? / What does the user want it to do?

**Form:** What are your user's favourite Brands / Colours / Favourite products? / Traditional, Modern, Retro.

**Cost:** How much would your user be willing to spend to solve this problem? / Why would they choose to spend this amount?

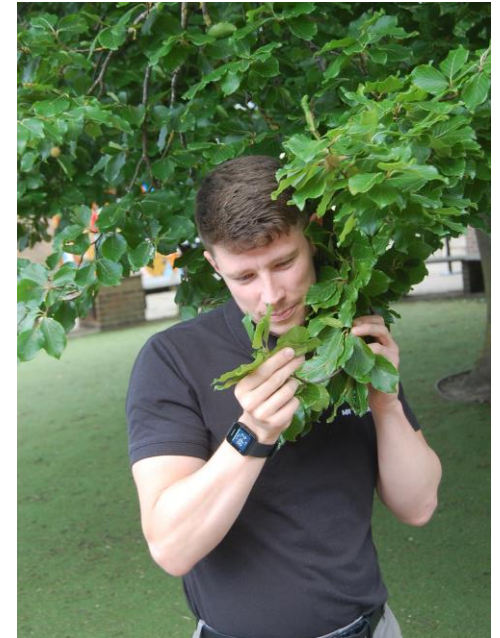
**Environment:** Where would this product go? / Transportable? / Fixed? / Type of surface? / What other product are nearby? / What colours, shapes, materials are there nearby?

**Size:** Are there any measurements that will be important to this design?

**Materials:** What materials do they prefer?

## Values:

Mr Mason values the planet and nature. He tries to shop responsibly and doesn't like buying a lot of plastic products.



## Conclusion (User Needs / Wants):

My user needs space at his work and at home. He has a number of large objects such as his road bike and guitar that need storage. He has a lot of equipment for his road cycling that is all over the house and transports the equipment in his car.

My user wants to have all of his equipment to be easily accessible. My user also wants all product that are made for him to be made from sustainable materials as he is a D&T teacher.



# Week 3- Investigating the area – 1 page

Now you need to analyse the area  
you have chosen in the home to  
improve with your product!

# Finding Problems and building a future Specification



## Problems I have found:

- In some areas of the house there are shoes and sports equipment all over the floor and not really anywhere for it to go.
- The bike itself could slip over and fall if knocked.

## Possible Specification Points:

- My product **must** store multiple items.
- My product **might** need to store the bicycle as well.



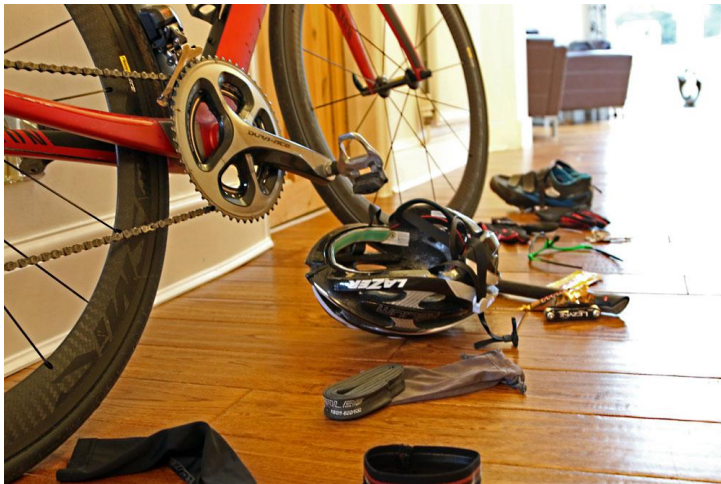
Some of your spec points will be a **must** and some will be a **might** if you are not sure about them!

# Research into problems



## On this page you need:

- An introduction box
- Images of the problem
- Problems you have found
- Possible spec points



## Level 6 and Up:

Possible Specification points:

Make a list of some specification points that you could add to your final spec from your research. What have you found that will be useful?



## Problems I have found:

You need to continue to find problems. Try to find as many problems with the space and what's in it.

Think about:

- **The space- what might get in the way?**
- **How is the space used?**
- **What mess there is?**
- **What specific products are there?**
- **Any more problems you can see?**

**I am looking at the space I am going to re-define. I will look at pictures of the area and discuss the problems I have found.**

There are several areas in my user's home that are quite messy where there is sports equipment and clothing on the floor. There isn't loads of storage in the house for these items to go. Some of the items are quite expensive and could get damaged if trodden on. I may be focusing on the area around the bicycle in the dining room and where the helmet and accessories are stored near the microwave. There is potential for a multi functional item that could sort out the mess. There are loose items everywhere and it is difficult to remove the helmet from beside the microwave.



The cupboard area stores a range of items including the Hoover, work bags and art supplies. The door has been removed for more easy access. There is some floor space that could be used.

## **Possible Specification Points:**

- My product must store multiple items.
- My product might need to stand against a wall for extra support.
- My product might need to store the bicycle as well.
- My product might need to hold clothing shoes as well as accessories.

## **Problems I have found:**

- In some areas of the house there are shoes and sports equipment all over the floor and not really anywhere for it to go.
- Some cycling equipment is expensive and may get damaged on the floor.
- The bike itself could slip over and fall if knocked.
- All of the shoe storage in the house is already full which is a problem.

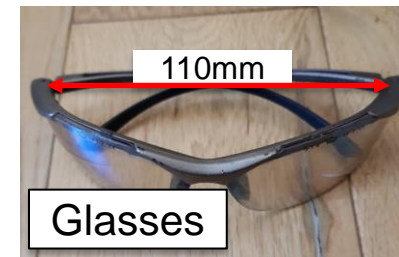
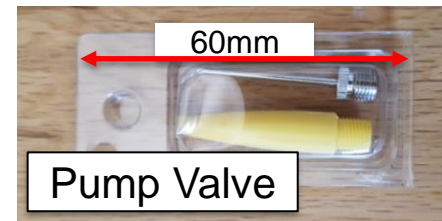
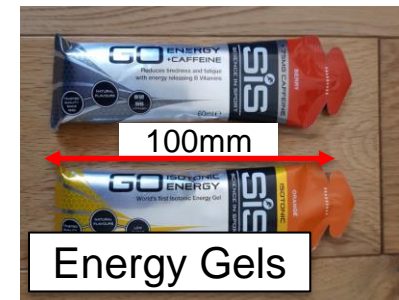
# Week 4 – Research into the products involved and complete a product analysis – 2 Pages

At this stage you now need to analyse and look at the products that will be involved and then conduct a product analysis of an existing product.



# Analysing the products involved

At the top of the page you need to write what you will be doing on this page.



## Possible Specification points:

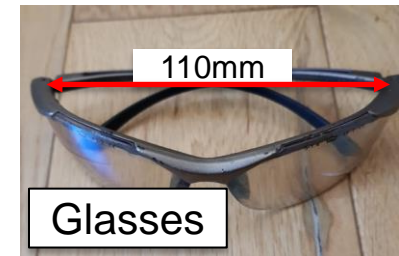
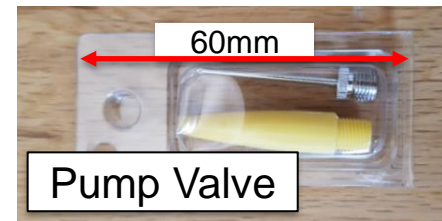
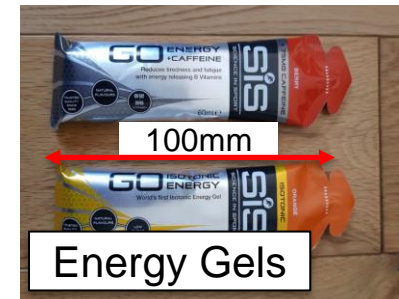
You need to continue creating possible spec points, now linking to the products you may be storing or tidying.

## Problems I have found:

You need to find problems with the products you have chosen. Sizes? Shapes? Weight? Colour? Design?

# EXAMPLE PAGE

On this page I am looking at the specific products that are causing a problem and will analyze them in terms of their size and their shape. You must do the same for your own context.



## Possible Specification points:

- My product will need to store a number of different sized products
- My product may need to store products that are dirty.
- My product may need to store clothing as well as cycling accessories.
- My product may not be storing the bike as it is large and will not fit in the space I am looking at.

## Problems I have found:

- All of the products are different sizes.
- Some of them are soft material and some are hard / more difficult to store.
- All of the products are durable apart from the bike which will need to stand up and not topple over.



# Product Analysis



## On this page you need:

- To analyze an existing product that you are going to re-design.
- Or a product/products that are similar to what you are thinking of designing.

### The key words you need to use are:

- **Function – What it does / Does it do it well?**
  - **Form – Colours and shapes**
  - **User– Who it is for?**
  - **Materials – What is it made from?**
  - **Size – Why is it this size?**
  - **Safety – Is it safe to use and why?**
  - **Environment – Where is designed for? Why?**
  - **Quality – How high is the quality? How do you know?**
  
  - **Durability – Will it last a long time?**
  - **Human Factors – Ergonomics**
  - **Social, Moral, Economic Factors –**
- Does it appeal to the needs and wants of the user?**

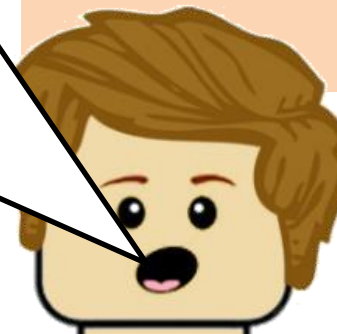
## Level 6 and Up:

Possible Specification points:  
Make a list of some specification points that you could add to your final spec from your product analysis.

## Problems I have found:

You need to continue to find problems. Try to find as many problems with the products you are analyzing. Think about:

- **Cost**
- **Materials**
- **Size**
- **Sustainability**



# EXAMPLE PAGE



I am conducting a product analysis of existing sports equipment storage to see what problems I can find and to learn from this when I start designing.

**Aesthetics:** This produce is a simple oven top / hob with frying pan, plate and food. The food and implements are brightly coloured which makes the set more fun, apart from the knife and slice. The images printed onto the food are bold and clear so that children can be sure of the different types of food.

**Function:** The function of this product is for children to pretend they are cooking a range of foods. The foods can separate using Velcro which is fun as children can cut them in half. It functions well as the pieces are easy to pick up and interact with. The different dials on the hob are bright and easy to understand.

**Cost:** This product is priced at £30.00 which is quite expensive for what you get. This price will be down to the material and the quality of the product. I would rather spend some more money for a higher quality product.

**Durability:** Given the hardwood this kit is made out of it is very durable and tough. It would withstand a lot of play and would be hard to chip or splinter due to the properties of the natural hardwood. The parts are also varnished to protect them and make the surfaces tougher.

**Safety:** This product is very safe apart from the two circular parts which could be dangerous if swallowed. None of the product is too heavy and there are not sharp points which could cause injury. There are also no electrical parts.



**Safety:** This product is very safe apart from the two circular parts which could be dangerous if swallowed. None of the product is too heavy and there are not sharp points which could cause injury. There are also no electrical parts.

**Materials:** This product is made from a natural timber which is Beech. This means that it is a high quality product. It is painted with a non-toxic paint and varnished to protect its finish. Any non painted parts have been sanded and varnished as wax could be toxic for young children.

**Manufacture:** This product has been manufactured by hand which means that some time would have gone into it. It would be made in a small batch and would not require any CAD/CAM. Due to the time taken to manufacture this product, the price would be much higher than if it was made using CAD/CAM. The quality will be higher also due to this.

**Safety:** This product is very safe apart from the two circular parts which could be dangerous if swallowed. None of the product is too heavy and there are not sharp points which could cause injury. There are also no electrical parts.

## Possible Specification Points:

- My product will cost less than £20 for the user to buy.
- My product will be made from sustainable materials.
- My product will be creative and eye-catching.
- My product might have modular features that can be added on.

## Problems I have found:

- Some sports equipment is very expensive.
- A lot of sports equipment storage is made from metal which is not sustainable and not all of it is recyclable.
- A lot of sports equipment storage is very large and bulky / unattractive.

# Week 5 – Research summary and potential briefs– 1 Page

Now you need to conclude what you have found from your research and write out three different briefs for your project.

# Research Summary & Potential Briefs



- How did you narrow down your brief from the initial 3 to your chosen area?
- What did you find out from the interview?
- What did you learn from the research in your chosen area?
- What have you taken into account looking at the products that need storing?
- What might you use from the product analyses and designer/ company research?
- Is there anything else you have learned from your research work?



**You need to write out up to 3 different briefs for the product you will design and manufacture:**

Possible brief 1:

Possible brief 2:

Possible brief 3:

## **Thoughts about the briefs:**

What are your thoughts on the briefs you have come up with?

Which ones have potential problems?

Which ones are more practical or realistic?

Think about materials available at school and size of the product!

## **Level 6 and up: (User opinion of the briefs)**

Talk to your user and get them to discuss the briefs and tell you which one they prefer from all four. Make sure they give reasons as to why the chosen one is their favourite!

# EXAMPLE PAGE



I decided to go with the space context because it was more open and I had a lot of ideas as to what problems I could find relating to this. Once I had found a user it was quite easy to explore different spaces that they had and the problems linked to this. Because they play sport and have a lot of equipment I knew it would probably relate to this.

From the interview I learnt that the space was probably going to be in the house or in the car, looking at sports or cycling equipment.

After analyzing the specific space and looking at the product in it I found problems as it is quite small and there is a lot of equipment / products requiring storage. It was very useful measuring all of the products so that I have an idea of the size the product might be.

I have also learned that my user like sustainable products and this will play a major part in my design and making to ensure I use sustainable materials and it is fully recyclable.



**Possible brief 1:** I will design and prototype a product which stores a road bike and all cycling equipment.

**Possible brief 2:** I will design and prototype a modular storage unit which can be added to and upgraded.

**Possible brief 3:** I will design and prototype a storage unit which is just for cycling accessories and is free standing.

## Thoughts about the briefs:

I like the idea of the product storing the bike as well as the equipment but this may make it much larger. Also, my user is planning to eventually store the bike in the shed so it may not be used for this purpose. The modular idea is good as it means it will cost less initially and it could be built up depending on the equipment available. I think the most useful design will store all of the important items that are needed before a bike ride so that it is all in one place.

## User opinion of the briefs :

After reading all four of the briefs I like brief 3 the best. I don't want anything attached to the wall as the wall as there isn't the wall space. I also don't think the bike needs to be stored as it is large and can go in the shed. If it is free standing ti means it can be moved around if needed.

# Week 6 – Final Brief and Specification– 1 Page

Now you need to write out your final chosen brief. You also need to write out a detailed specification for your final product.

# Final Brief and Specification



If you created a specification for your lamp, then this should be quite easy as it is the same concept. You basically need to write a list of points like a check list for the product you will make. For example, if I was making a product which is going to store shoes/trainers I would have the following specification points:

**Function:** My product will hold a range of different sized shoes

My product must allow easy access to the shoes and trainers

**Form:** My product will match the colour scheme of the Nike trainers it will be holding

**User:** My product must appeal to my user by using futuristic styling.

**Materials:** My product must be made from sustainable materials.

You want to write as many points as you can; especially for Function. Start by just adding one point for each heading. Don't worry if you can think of lots as you can always add to this at a later date in the project.



# EXAMPLE PAGE



**9 – 10 Marks:** Written a comprehensive, relevant specification, including a range of objective and measurable criteria, to direct and inform the design and manufacture of a prototype.

**3 – 5 Marks:** Written a satisfactory specification, including some key points, to partially inform the design and manufacture of a prototype.

**Final Brief:** I will design and prototype a storage unit for cycling accessories that could be upgraded to store cycling clothing. The product will be mainly be storing cycling shoes, helmet, gloves, valves, energy gels and glasses. The product will be going against the wall in the corner of my chosen space and it's primary function will be to hold these products and be easily accessible. It may have a part which opens to make certain products easier to access and the unit may be attached to the wall depending on the final design outcome.

**Problem I am solving:** My user has an area in his house where it is messy and unorganized. My user cycles regularly and needs quick access to his cycling gear which at the moment is spread all over the place and hard to find.

Heading	My Product MUST	My Product COULD	How they will be tested
Function	<ul style="list-style-type: none"><li>My product will securely hold cycling accessories</li><li>My product will provide easy access to the products it holds</li></ul>	<ul style="list-style-type: none"><li>My product will possibly be attached to the wall to provide support</li><li>My product will possibly have an opening part which will provide easy access</li></ul>	I will put all of the items into my models that I make and in the final product. I will ensure I can take all of the product out easily. I will see how easily the product attaches to the wall.
Form	<ul style="list-style-type: none"><li>My product will fit in with the colour scheme in the dining room which is grey and white</li><li>My product will use subtle colour to match the products</li></ul>	<ul style="list-style-type: none"><li>My product might have some branding based on bike companies</li></ul>	I will take pictures of the room and make sure that the materials and colours use go perfectly with the room.
User	<ul style="list-style-type: none"><li>My product will appeal to my user who is a 45 year old man</li><li>It will suit a modern style.</li></ul>	<ul style="list-style-type: none"><li>It might have their name somewhere on the design to add personality</li></ul>	I will continually show my product to my user and ask their opinion when testing and developing.
Materials	<ul style="list-style-type: none"><li>My product will use plywood as this is manufactured board</li><li>My product will use a small amount of re-used acrylic</li></ul>	<ul style="list-style-type: none"><li>It might use specialist materials that I will find myself.</li></ul>	I will make sure I only use these specific materials throughout manufacture.
Size	<ul style="list-style-type: none"><li>My product will fit neatly against the wall in the corner</li><li>My product will be no higher than 45cm</li><li>It should be no wider than 30cm</li><li>It should be no deeper than 25cm</li><li>It must have holes that are 8mm in diameter for the pens</li></ul>	<ul style="list-style-type: none"><li>It should be as small as possible and materials should be as thin/ minimal as possible</li></ul>	I will measure all of the environment to make sure my development takes this into account and fits perfectly. I have already measured the items to be stored.

# EXAMPLE SPECIFICATION



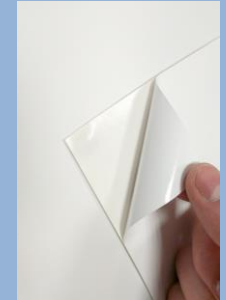
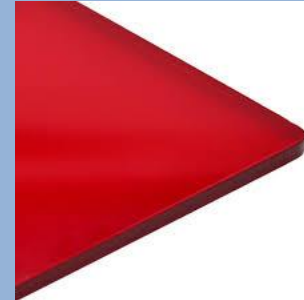
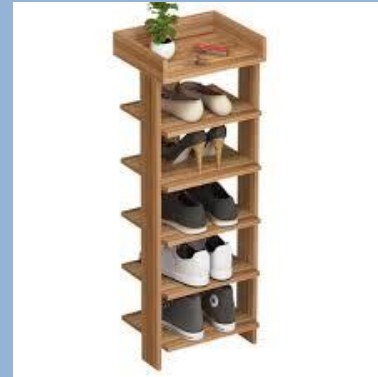
Heading	Spec Points	How they will be tested
Function	<ul style="list-style-type: none"> <li>My product will securely hold cycling accessories</li> <li>My product will provide easy access to the products it holds</li> <li>My product will possibly be attached to the wall to provide support</li> <li>My product will possibly have an opening part which will provide easy access</li> </ul>	I will put all of the items into my models that I make and in the final product. I will ensure I can take all of the product out easily. I will see how easily the product attaches to the wall.
Form	<ul style="list-style-type: none"> <li>My product will fit in with the colour scheme in the dining room</li> <li>My product will use subtle colour to match the products</li> </ul>	I will take pictures of the room and make sure that the materials and colours use go perfectly with the room.
User	<ul style="list-style-type: none"> <li>My product will be tested by my user throughout development</li> <li>My product will use materials that appeal to my user</li> </ul>	I will continually show my product to my user and ask their opinion when testing and developing.
Materials	<ul style="list-style-type: none"> <li>My product will use plywood as this is manufactured board</li> <li>My product will use a small amount of re-used acrylic</li> <li>My product will use</li> </ul>	I will make sure I only use these specific materials throughout manufacture.
Size	<ul style="list-style-type: none"> <li>My product will fit neatly against the wall in the corner</li> <li>My product will not be higher than the microwave</li> <li>My product will fit all the different sized items inside easily</li> </ul>	I will measure all of the environment to make sure my development takes this into account and fits perfectly. I have already measured the items to be stored.
Safety	<ul style="list-style-type: none"> <li>My product will not topple and will sit flat on the ground</li> <li>My product will not get in the way of operating the microwave</li> <li>My product will not be a trip hazard and will not stick out</li> </ul>	I will make my product completely level with or without products in and will use a spirit level when manufacturing.
Environment	<ul style="list-style-type: none"> <li>My product will fit neatly inside the alcove next to the fireplace</li> <li>My product will use natural colours and white to blend in with its environment</li> </ul>	I will measure all of the environment to make sure my development takes this into account and fits perfectly. I have already measured the items to be stored.
Quality	<ul style="list-style-type: none"> <li>My product will be made using methods which best reflect the highest quality</li> <li>My product will use laser cut components which will improve the quality</li> <li>My product will be finished using wax and plastic will be</li> </ul>	I will check with the technician and the teacher that the technique I am using is the best for quality. I will check my final product against one from a shop.
Manufacturing	<ul style="list-style-type: none"> <li>My product will be made using the most cost effective methods</li> <li>My product will be made using hand techniques to cut down on costs</li> </ul>	I will check with the technician and the teacher that the technique I am using is the best for manufacture. I will make sure hand techniques are the way to go before proceeding.
Sustainability	<ul style="list-style-type: none"> <li>My product will only be made from sustainable materials</li> <li>My product will only use recycled thermoplastic</li> <li>My product will use reclaimed aluminium</li> </ul>	I will check to make sure exactly where the materials I am using has come from. I will use the box of Acrylic off-cuts when manufacturing.
S.M.E	<ul style="list-style-type: none"> <li>My product will use materials that have come from a sustainably managed forest</li> <li>My product will use materials which are cost effective leading to a cheaper product</li> </ul>	I will check to make sure exactly where the materials I am using has come from.

# Week 7 – Inspiration Board– 1

## Page

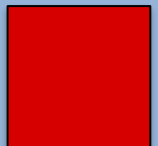
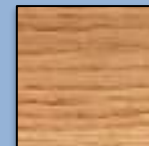
Now the fun begins! You need to create a mood board of Products / Materials / Techniques / Colours that think may influence your design ideas. Anything that will help with drawing out your initial design ideas.

# EXAMPLE PAGE



## Possible Spec Points:

- My design has to follow the red, white and natural wood colour scheme,
- My product must follow the Nike shoe box style



# Inspiration Board

## Products that you like that link to potential design ideas

## Materials you think you may use

**A range of different designs made from different materials**

## Any extra fixtures or fittings you may use

► **Colour swatch to show what colours you ideas may follow**

### Possible Spec Points:

- My design has to follow the red, white and natural wood colour scheme,
- My product must follow the Nike shoe box style

**As always, potential spec points**

**Level 6 and up:** Make sure you have at least 30 images...This is in A3 remember! The more images, the more detail, the more thought, the more marks!

# Week 8 – Design Ideas– 1 to 2 Pages

It's designing time...Yay!

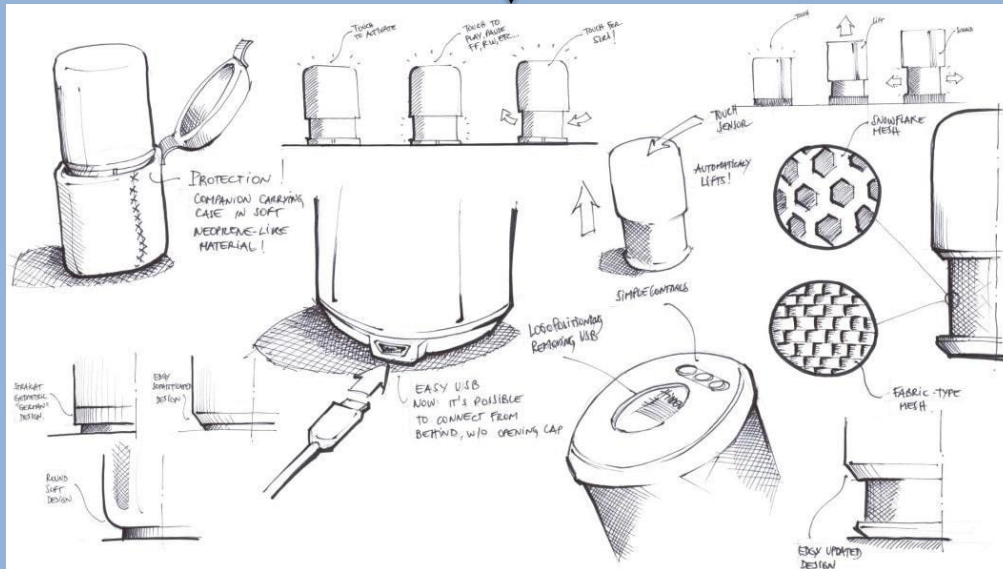
Now is the time that you need to sketch out as many design ideas as you can using pencil and paper. It doesn't matter if you only have 5 or if you have 100, just get the ideas down on paper.



# Design Ideas



**Nobody is expecting you to be able to draw like this! Although if you can...awesome!**



**Just simple 2d ideas can also work. As long as you draw a range of views and annotate!!**



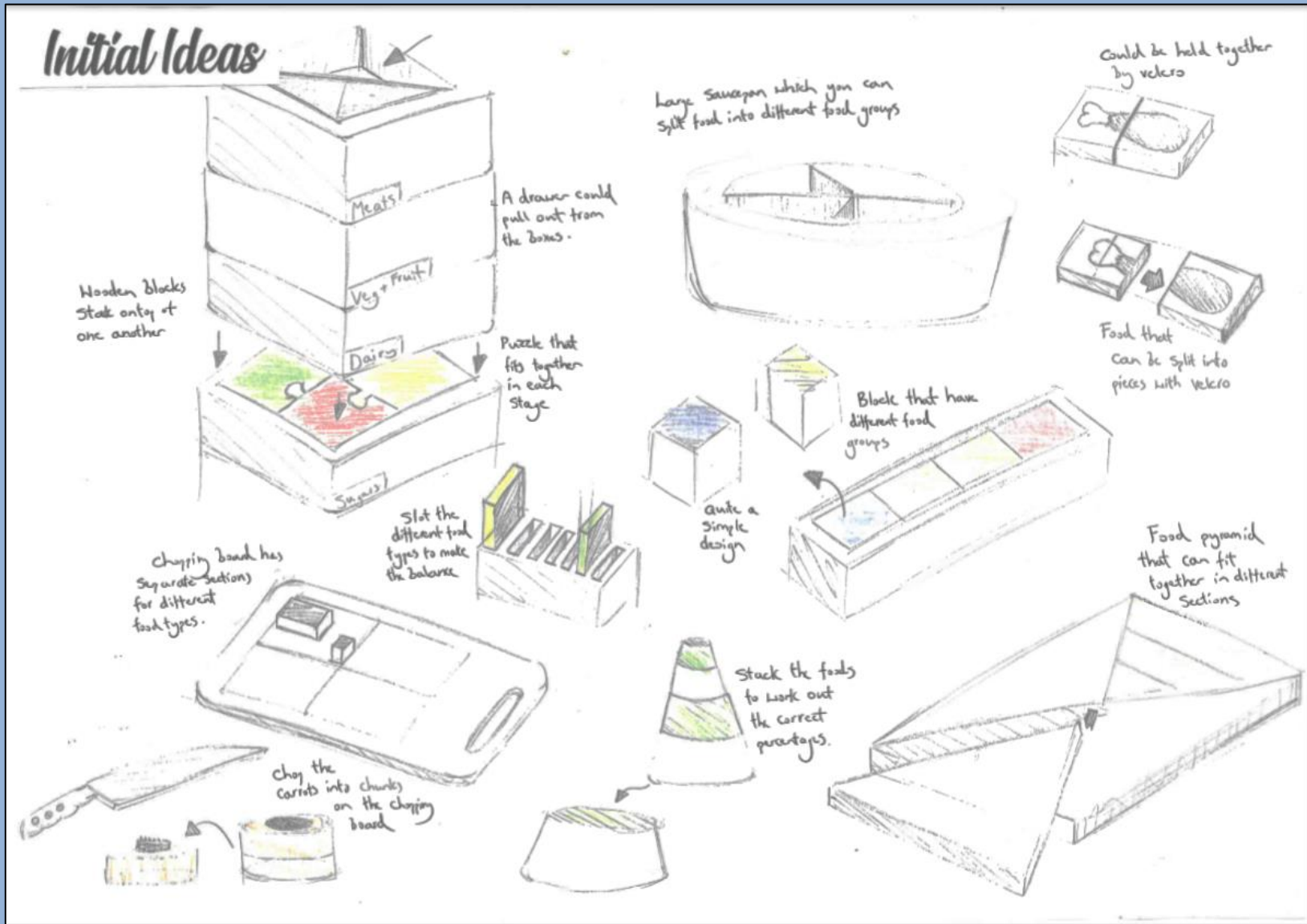
**Level 6 and up:**The difference is making sure you are linking your annotation to your specification points. In the example I have put a Y for yes or N for No to show whether or not it correctly meets the spec point .



# EXAMPLE PAGE

level 4 / 5

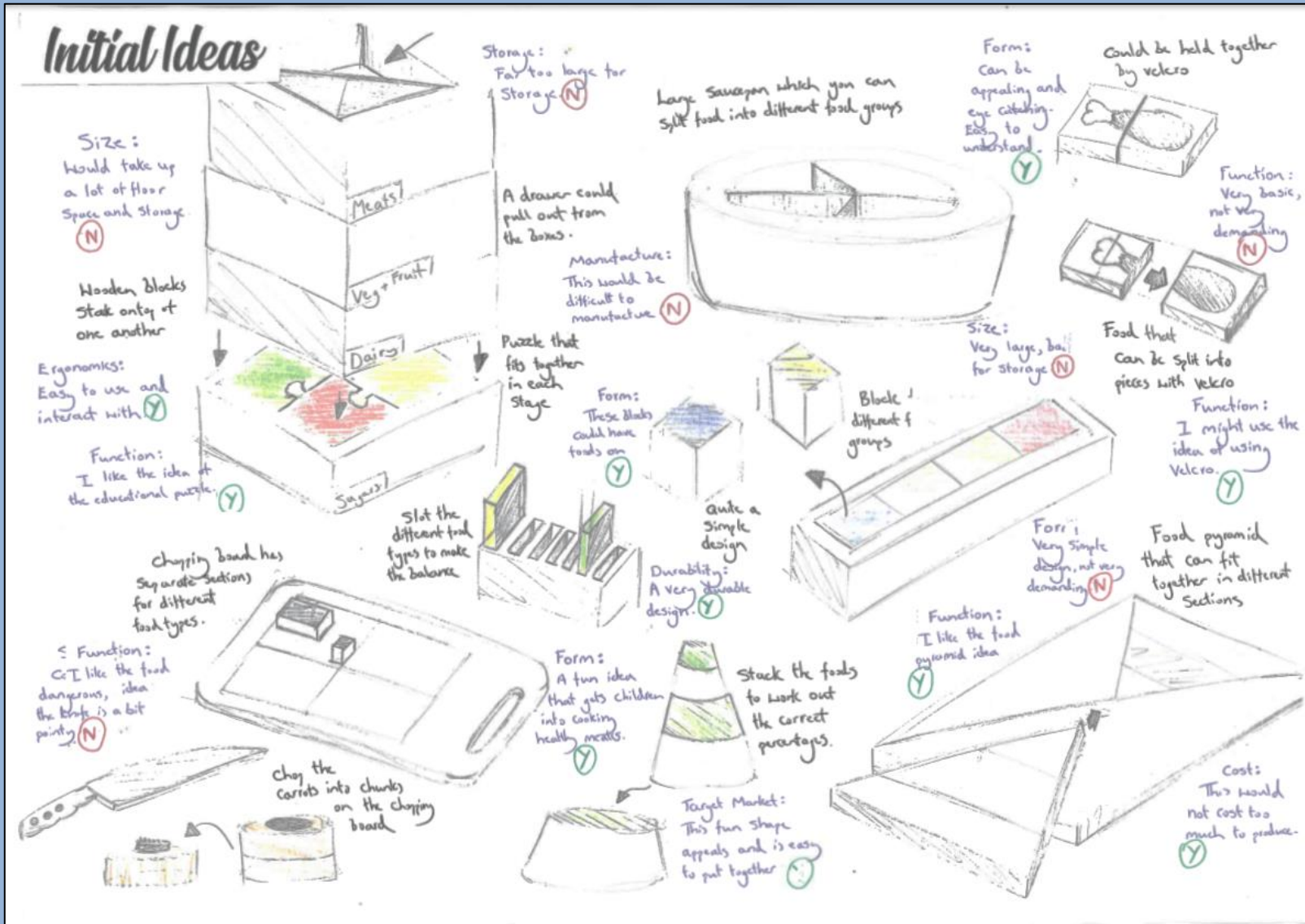
A range of ideas with annotation. The quality of drawings doesn't matter but the range of creative ideas.



# EXAMPLE PAGE

level 6 and up:

The difference is making sure you are linking your annotation to your specification points. In the example I have put a Y for yes or N for No to show whether or not it correctly meets the spec point



# Week 9 – Idea Development– 1 to 2 Pages

Now that you have drawn out as many ideas as possible, you need to start developing a few of them, adding details about manufacture, materials, form and function.

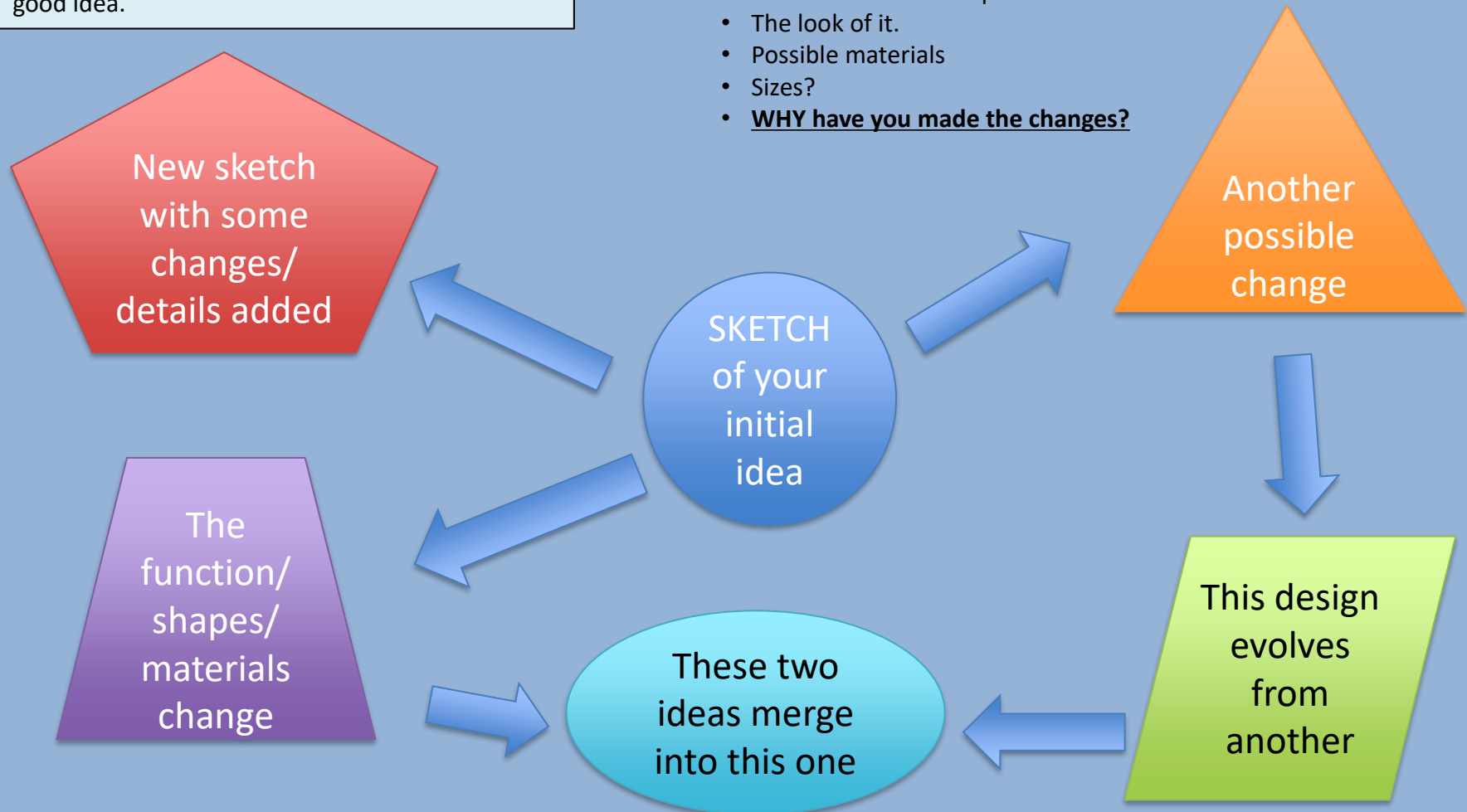
# Design Development



This page is all about showing how an initial idea can be changed into something that might work. You must show little (or big) changes you have made. Now is the time that you need to clearly communicate the design. 3D sketches might be a good idea.

Annotations around the design will be really important in helping to communicate the idea. Think about:

- What does it do?
- How does it hold the product?
- The look of it.
- Possible materials
- Sizes?
- **WHY have you made the changes?**







# Week 10 – Acting on feedback / Improving Work

This week will give you the chance to reflect and maybe pause. You need to ask your user for some detailed feedback on your project so far. You need to also add further detail to your project pages.



# Acting on Feedback



## What to do this week:

1. Ask your user for detailed feedback on your project so far and write it up onto a new page.
2. Add further specification points to your Spec. You can never have too many spec points!
3. Add detail to your product analysis page by discussing in detail why the products are made from the material they are made from.
4. Add further annotation to your design ideas linking them to your specification.
5. Make sure you have images of the space you are “sorting” and images of the product you will be storing.



# Week 11,12 and 13 – Sketch Up (2 Pages)

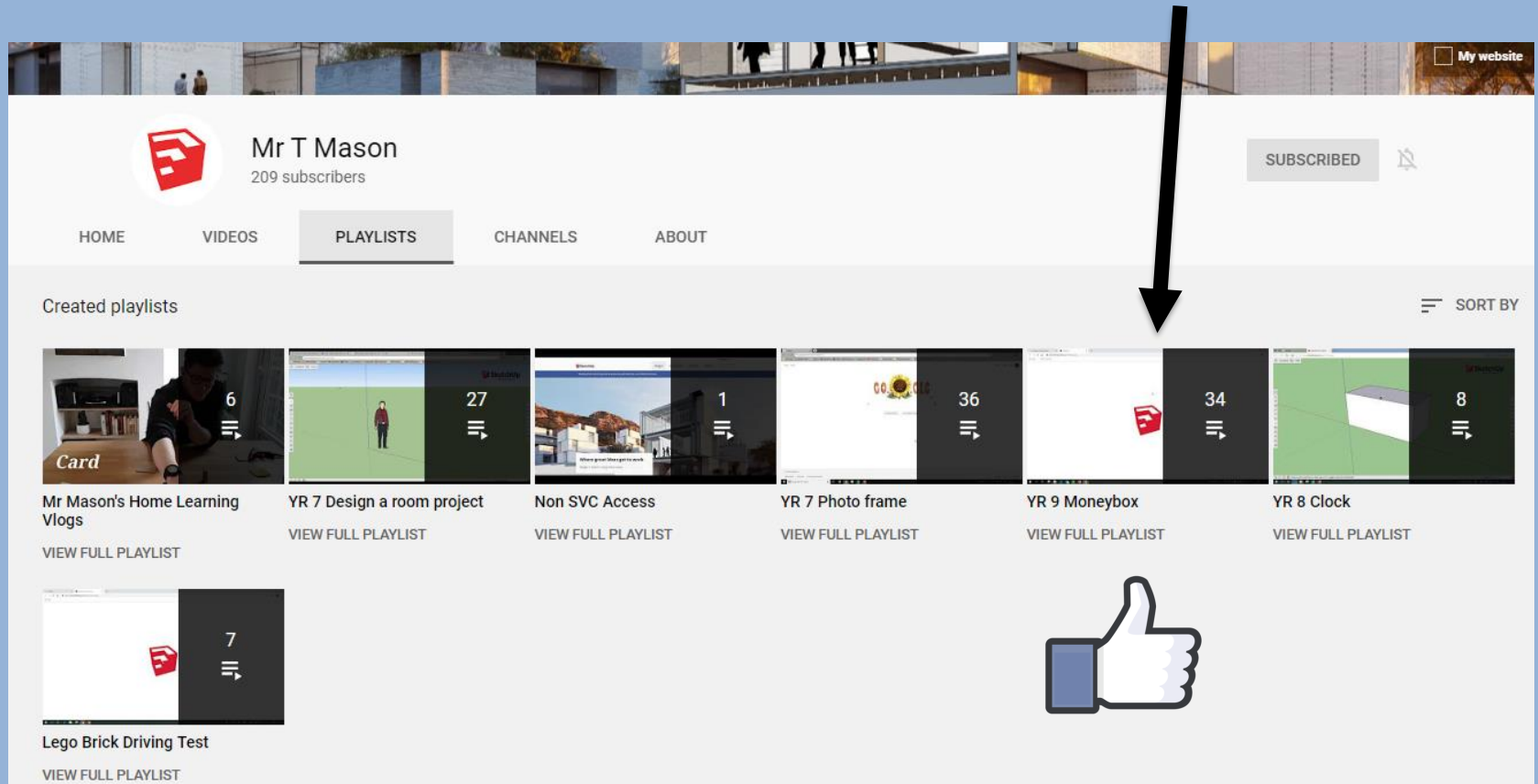
For the next three weeks you are going to develop your design to the point where you can make a sketch up model. At this point without teacher guidance you need to try and keep your design as simple as possible!

# Sketchup



As a year 10 you would have modelled your lamp design on Sketch up before school closure so you should have a good idea of how to use it.

If you need to refresh your memory then you can watch and follow the YR 9 Moneybox Sketch Up tutorial videos on the Youtube channel:

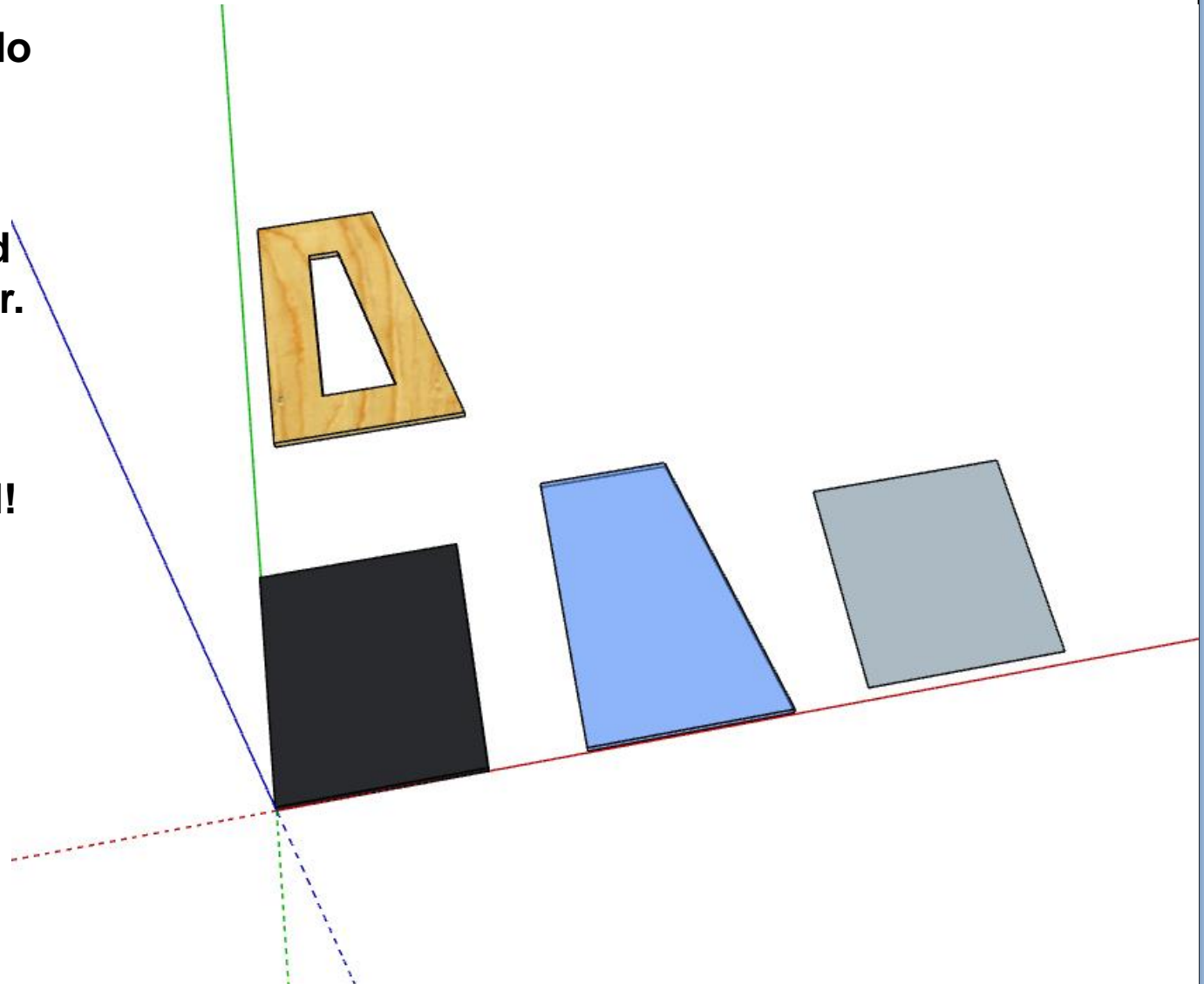


# Sketch Up



**The best way to do it is by drawing out all of your individual parts flat on the ground next to each other.**

**Don't forget to make sure your template is in MM!**



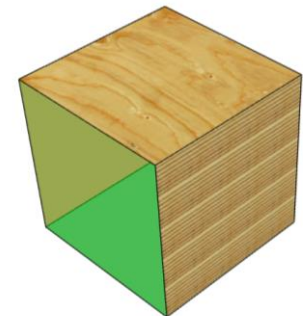
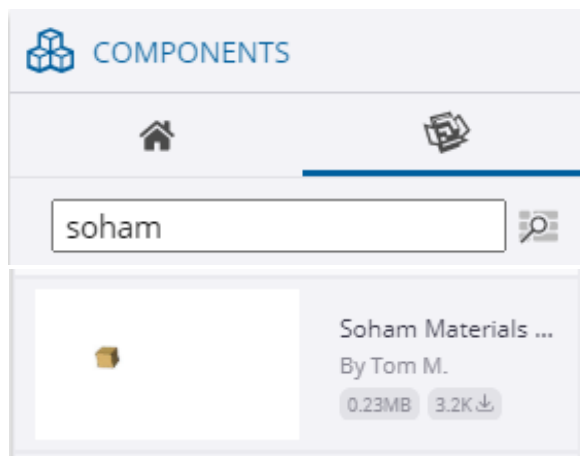
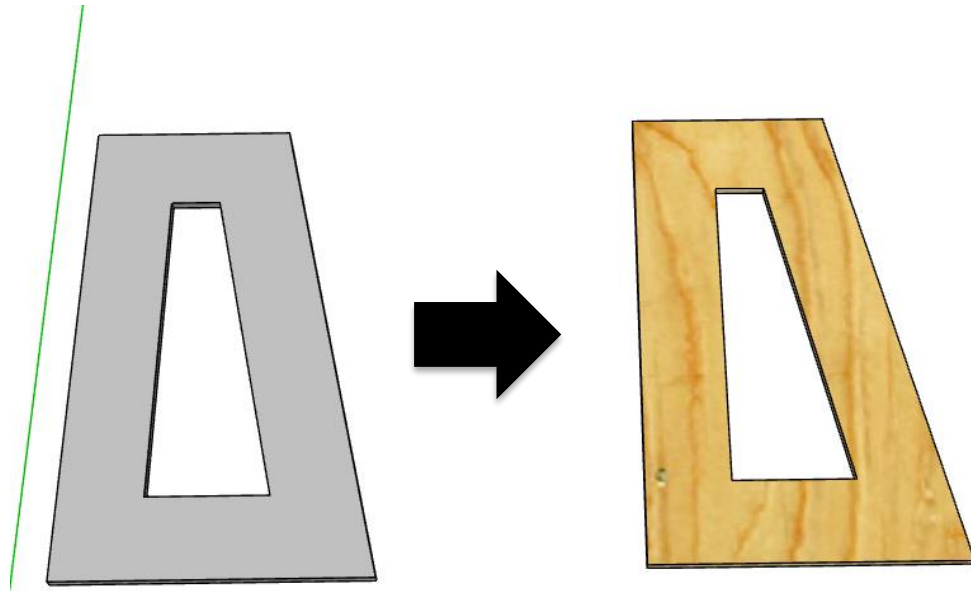
# Sketch Up



**Add the material or colour as you go.**

**The “Soham Material Cube” has plywood and live edge Acrylic.**

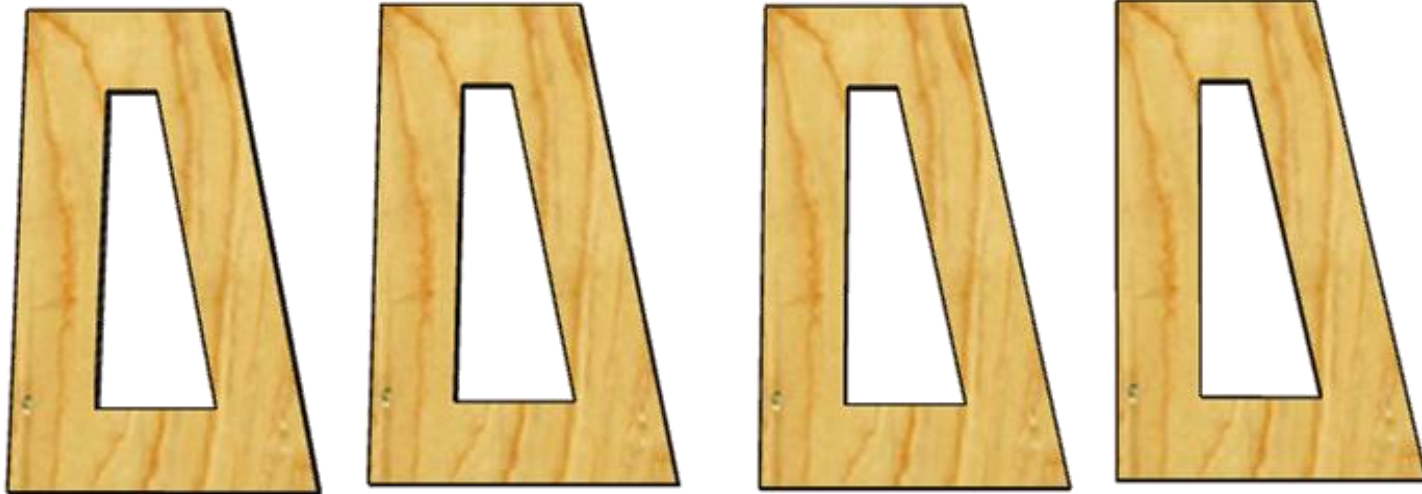
**Delete the cube once it is on your page and then find the textures in the paint bucket tool under home:**



# Sketch Up



Don't forget to copy and paste parts that you have more than one of!



+



Then



+

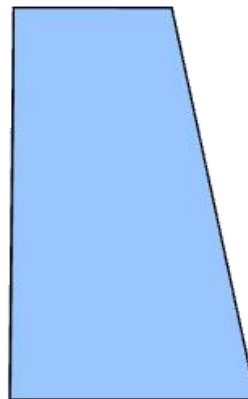
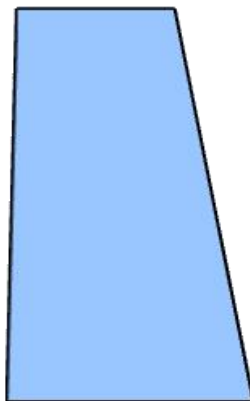
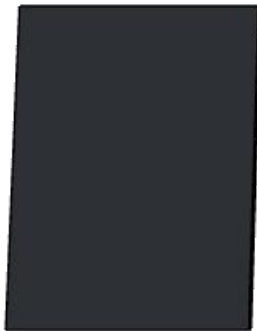
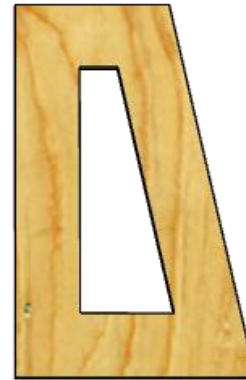
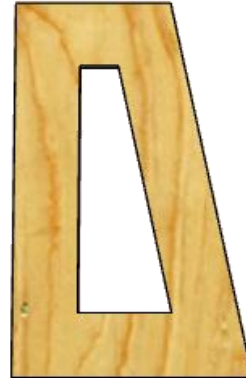
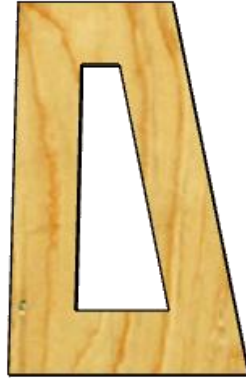
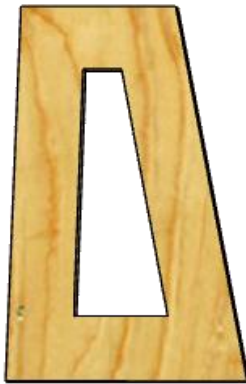




# Sketch Up



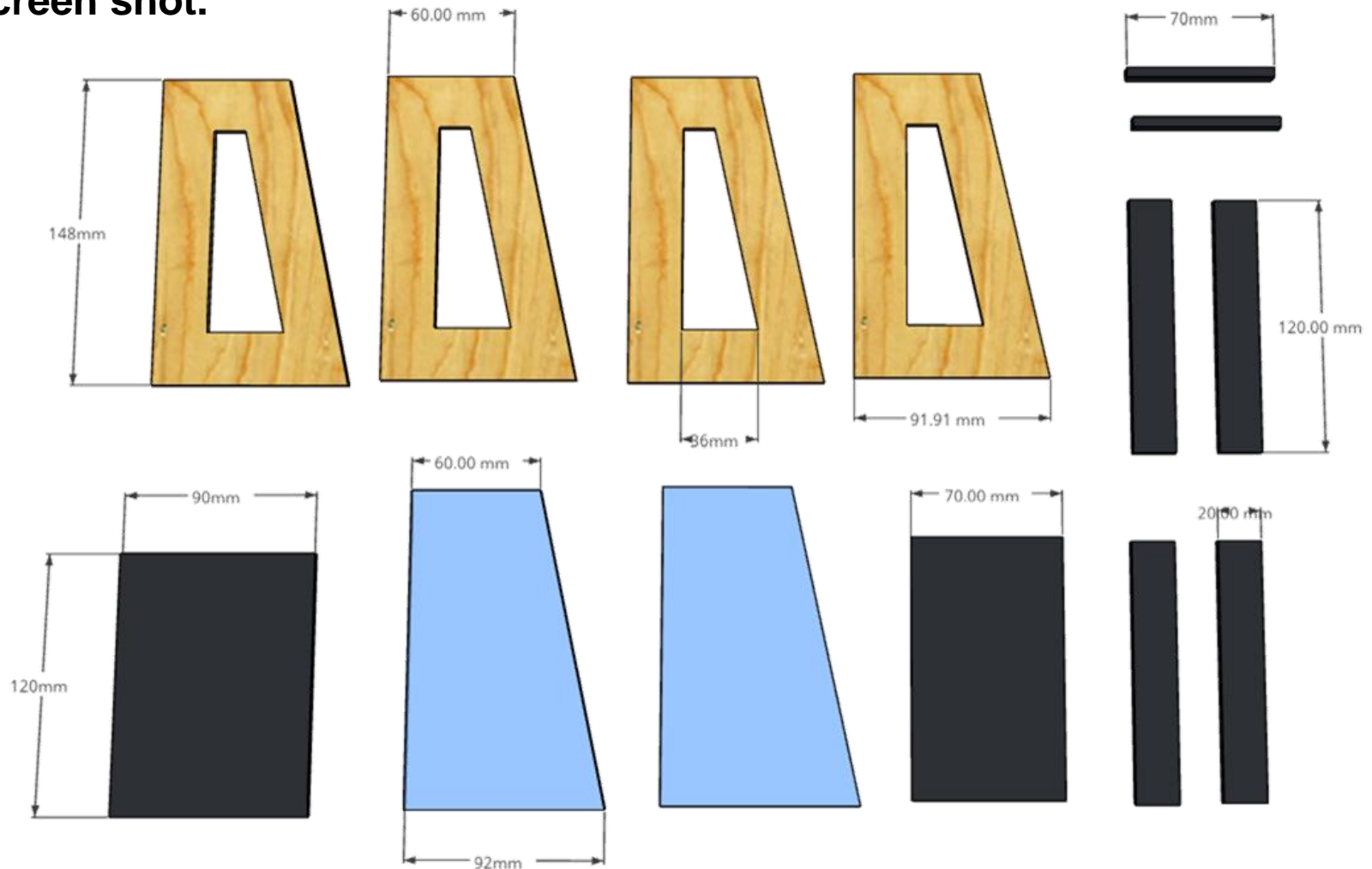
Now you need to check that all of your individual parts are all components.



# Sketch Up

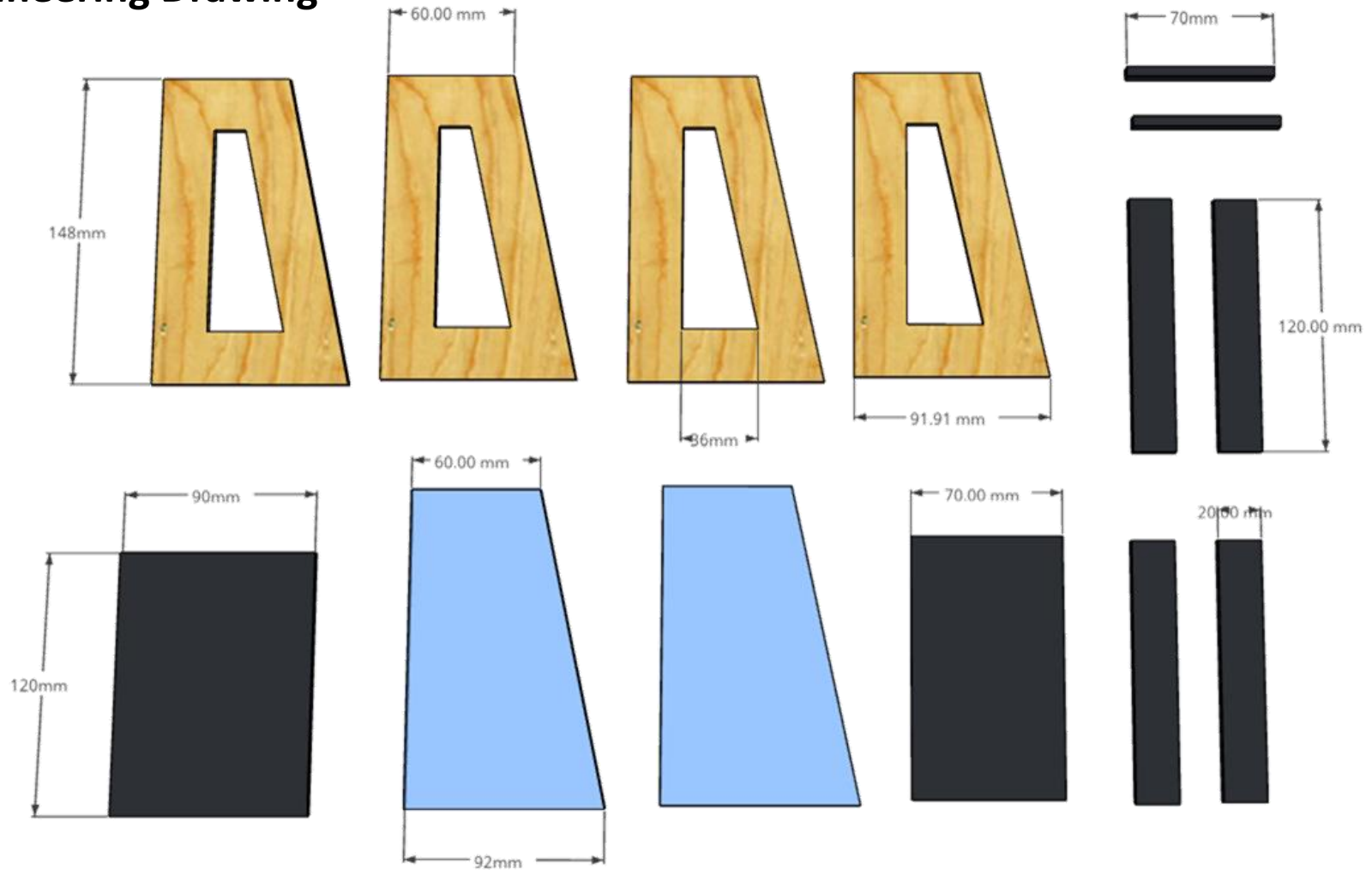


Now you need to add dimensions to your individual components and take a screen shot.



# EXAMPLE PAGE 1

## Engineering Drawing

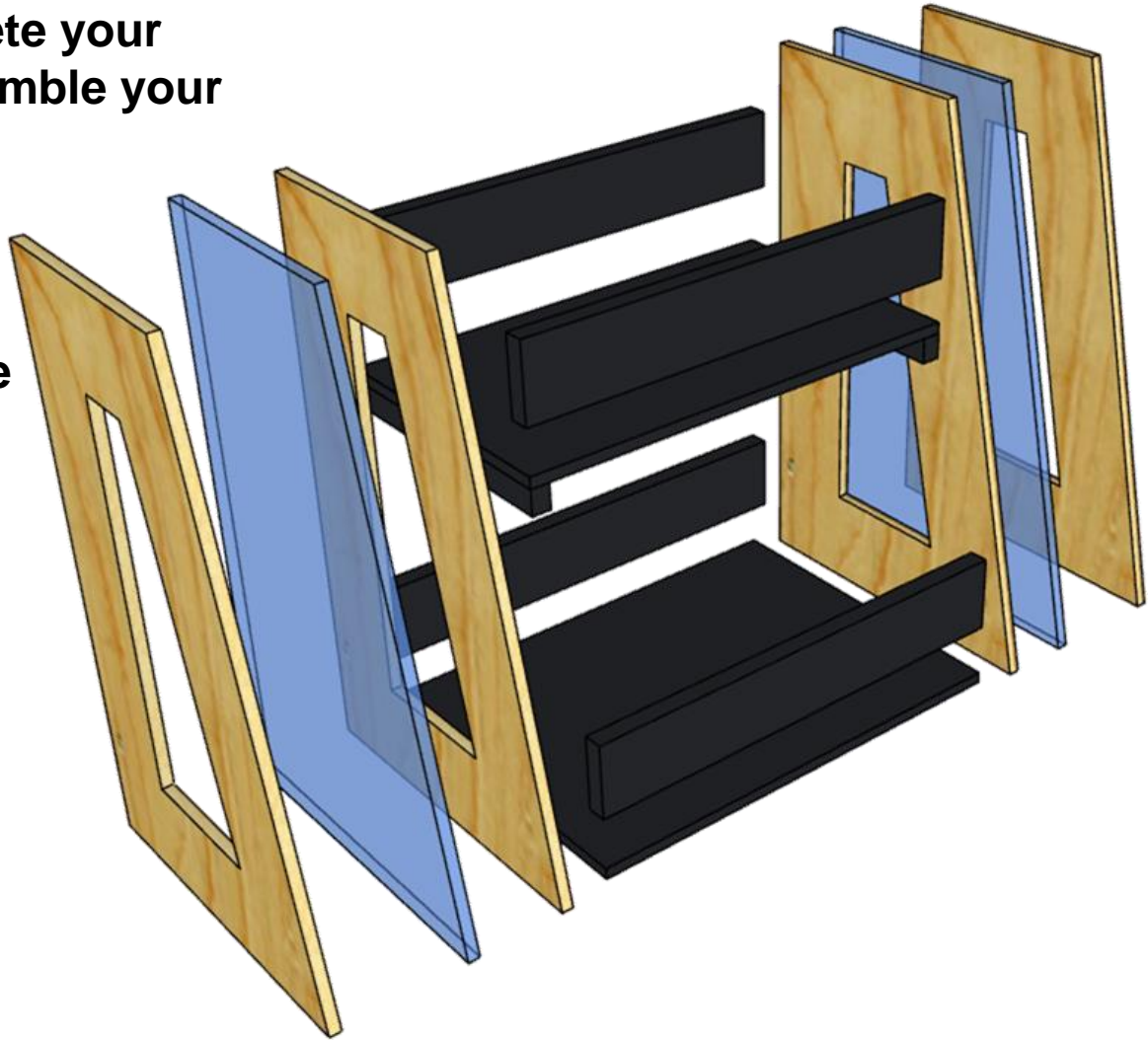


# Sketch Up



**Now you need to delete your dimensions and assemble your product.**

**Don't forget to watch  
Some tutorial  
Videos if you struggle  
With moving and  
Rotating!**



# EXAMPLE PAGE 2

On this page you just need high quality images of your final product on sketch up. Add products it will be storing too!

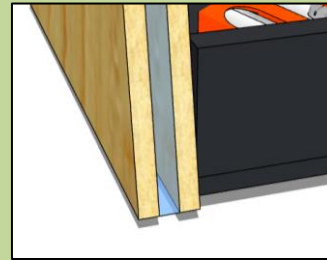


## Final Design



## Level 6 and Up:

Could you add any detailed views that are particularly technical or would benefit from being shown using an image?



# Week 14 (1 Page)

For your final week you need to go through your specification and add in as many extra spec points as possible. You should have more of a clearer idea of your project now so you should be able to add in some more points.

Next you need to complete a page of extra research that is specific to your design. This might be you looking at a specific material you are going to use or it could be a specific wood joint you may use. Or it may be a page of research into a specific component such as bungee cord or hinges.



# Extra Research



**This page will show that you really know your project. It also gives you do some extra research into something that you may be unsure of.**

**Examples of areas you could look into:**

- **Specific material you will be using**
- **Specific wood joint or way of fixing**
- **Components such as hinges or magnets**
- **The particular branding you want for your product**
- **Ergonomics (How people will interact with your product)**
- **The electronic system your product may use**
- **Costing of materials**
- **Costing of manufacturing**
- **Different methods of manufacture (One off / Batch / Mass)**
- **Finishes you could apply to your product (If made for outdoors especially )**
- **More in depth research into the products you are storing**



# EXAMPLE PAGE

On this page you just need to show some deeper research into an area specific to your project



## Extra Research into Plywood

**Environmentally Friendly** – It's a natural product made from a renewable resource. Therefore, it is one of the most environmentally friendly decorative products available to the consumer.

**Strength** – Pound for pound, plywood is stronger than steel in static bending strength. What makes plywood so strong is its unique cross-layered structure. The adhesives used to bond the veneers in plywood are actually stronger than the wood itself.

**Beauty** – Architects and designers prefer the beauty of wood over any other material. The natural characteristics of wood make it attractive to the eye. No material can match the infinite variety of natural markings and figure patterns offered through fine hardwood.

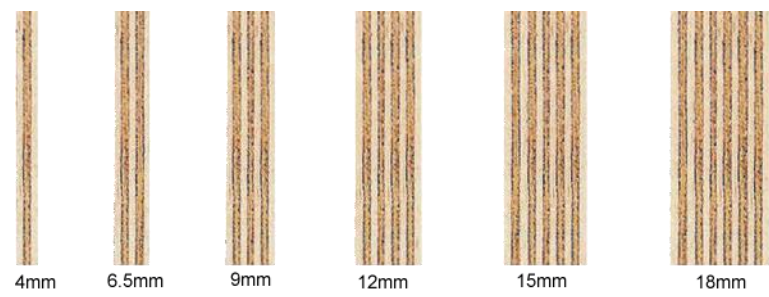
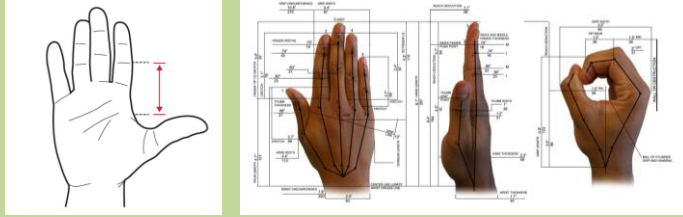
**Versatility** – A great variety of products in various shapes and sizes can be manufactured from hardwood plywood. Chair backs and seats, domes, bowling alley channels, and pianos are just a few of the many various curved plywood products.

**Durability** – In museums all over the world are ancient examples of plywood furniture that have lasted hundreds of years.

I looked into the thickness of plywood that are available to me at school and also at the costs. I think I will use 12mm as it will keep down the costs of my product but will also be thick and strong enough to support the products it will be holding.

### Level 6 and Up:

I have looked into hand sizes as I am making an Xbox controller and game storage unit. This data will help me to work out the gap I need to have around my products when removing them.



Material	Thickness	Sheet	area	Price	Price/m2	Price/A4
	mm	dimensions	m <sup>2</sup>			
Plywood	3	4x8ft	2.97	£ 24.19	£ 8.14	£ 0.50
Plywood	6	4x8ft	2.97	£ 26.61	£ 8.96	£ 0.56
Plywood	9	4x8ft	2.97	£ 30.55	£ 10.29	£ 0.64
Plywood	12	4x8ft	2.97	£ 34.27	£ 11.54	£ 0.72
Plywood	15	4x8ft	2.97	£ 41.38	£ 13.93	£ 0.86
Plywood	18	4x8ft	2.97	£ 44.72	£ 15.06	£ 0.93