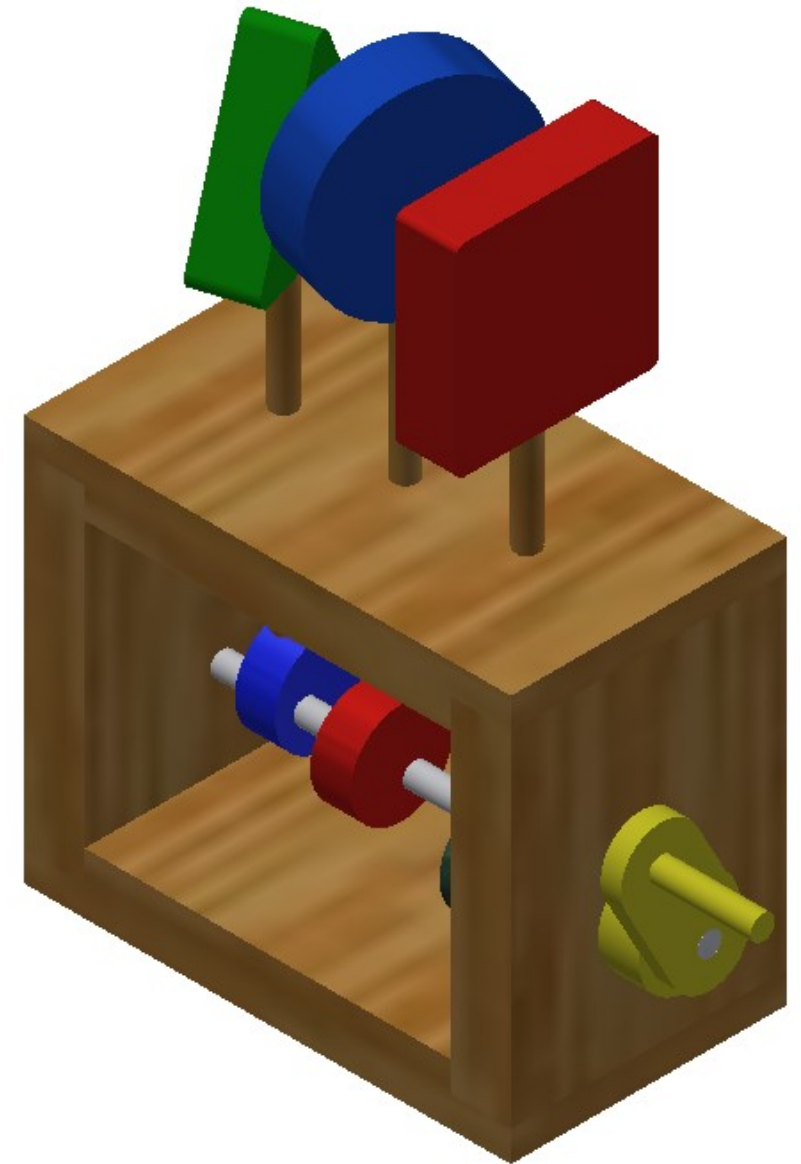


Turnbull High School
S2 Woodwork

S2 Wooden Toy



Name: _____

Class: _____

Course Aims

By the end of this unit, you should have developed a number of skills and abilities which are listed below. Once you are happy that you agree with these statements, tick the boxes next to them.

Notes

Use this space to make any additional notes.

TCH 3-13a	
I can use the pillar drill in a safe and controlled manner.	
I can use a tenon saw and coping saw to cut the joints for the box and the shapes.	
I can use a chisel to remove waste material from the corner rebate joints.	
TCH 3-13b	
I can select the appropriate file to smooth the edges of the shapes.	
I can use sand paper to smooth my material in preparation for painting.	
TCH 3-14a	
I can create a template to help me with the manufacturing stage.	
I can evaluate my own work at the end against a number of success criteria.	
TCH 3-15a	
I can present my design ideas in both 2D and 3D.	
TCH 3-15b	
I can use my imagination or inspiration from other sources to develop my design ideas.	

Glossary



Steel Rule



Try Square



Tenon Saw



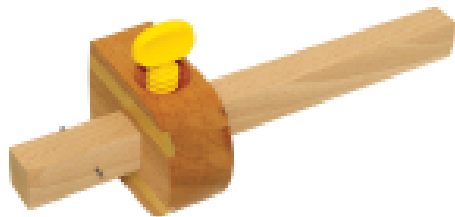
Sawing Board



Jack Plane



Coping Saw



Marking Gauge



Mallet



Bevel Edged Chisel



Sander



Pedestal Drill

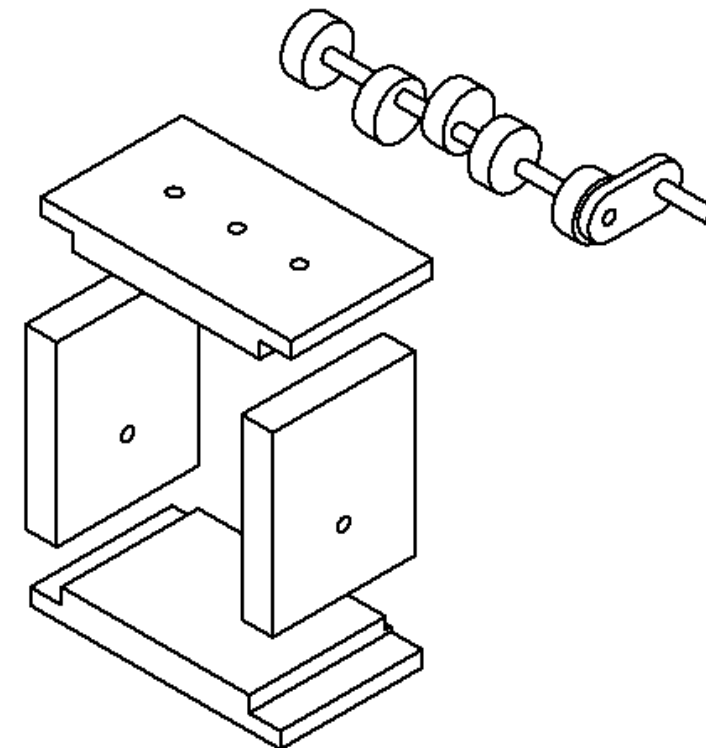


G Clamp

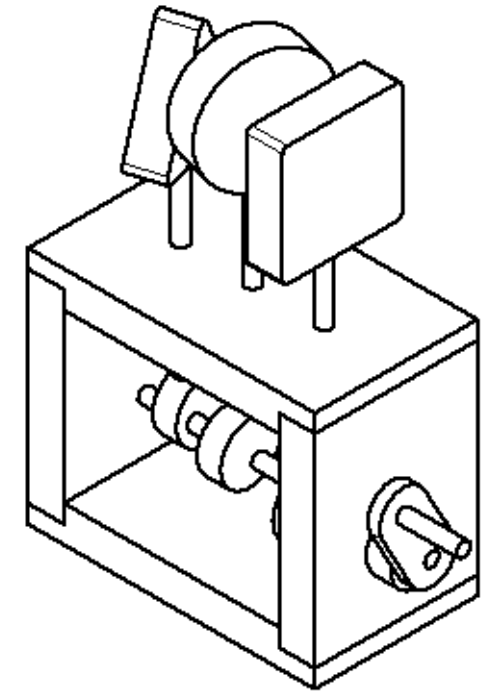
Your Task

For this unit, you will be designing and making a mechanical wooden toy aimed at young children. The aim is that when the handle is turned, the wooden shapes on top move up and down.

Everyone in the class will make the same basic box shape and handle mechanism shown below in Model A. Your task as a designer is to design the shapes which move up and down; an example of which is shown in Model B.



MODEL A



MODEL B

Brief:

Design 3 shapes to make your mechanical toy appealing to children.

Specification:

1. The shapes must be appealing to children.
2. The shapes should be brightly coloured or patterned.
3. The shapes must fit within pieces of wood measuring 50 x 50mm.
4. The shapes must be smooth so they are safe for small children.
5. The toy must have no loose parts which could be dangerous.

Function

Aesthetics

Processes

Analysis

Safety

Materials

Evaluation

You are now going to assess yourself against a number of success criteria. Give yourself a rating out of five for each of the statements by shading in the stars. Once you have done this, give your model and booklet to someone else at your table and ask them to fill in the 'Peer Mark' column. Ask them to add in any comments about your model. Once the table has been filled in, answer the questions at the bottom of the page.

Success Criteria	My Mark	Peer Mark	Comments
The shapes are appealing to children	☆☆☆☆☆	☆☆☆☆☆	
The shapes are smooth to touch	☆☆☆☆☆	☆☆☆☆☆	
All of the parts are secure	☆☆☆☆☆	☆☆☆☆☆	
The corner rebate joints fit together tightly with no gaps	☆☆☆☆☆	☆☆☆☆☆	
The toy is assembled and finished to a high standard	☆☆☆☆☆	☆☆☆☆☆	
I completed most of the work on my own without the teacher's help	☆☆☆☆☆	☆☆☆☆☆	

If you were making this model again, is there anything you would do differently? If so, what?

Manufacture

Use this page to record how you completed each of the tasks in the manufacturing stages of the Wooden Toy.

Process	Tool(s) used	Illustration
Marking out the length of the wood and cutting to size.		
Sanding to a line.		
Marking out corner rebate joints.		
Cutting corner rebate joints.		
Manufacturing the handle mechanism.		
Manufacturing the shapes.		
Assembling and finishing.		

Homework I: Research

In the space below, create a mood board showing possible **THEMES** that may be appealing to children.

You may sketch, print pictures from the internet, cut pictures from magazines or produce a combination of all three.

Think about things that children may like for example cartoons or animals.

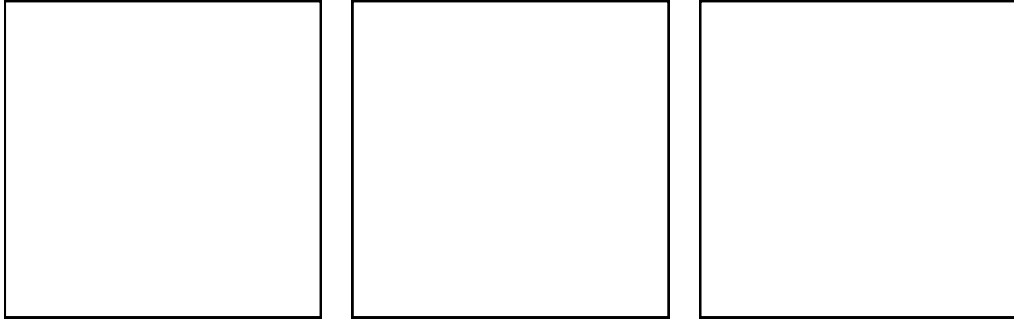
Initial Ideas

Having done your research homework, you should now have some ideas about what you would like your toy to look like. In the spaces below, sketch your ideas.

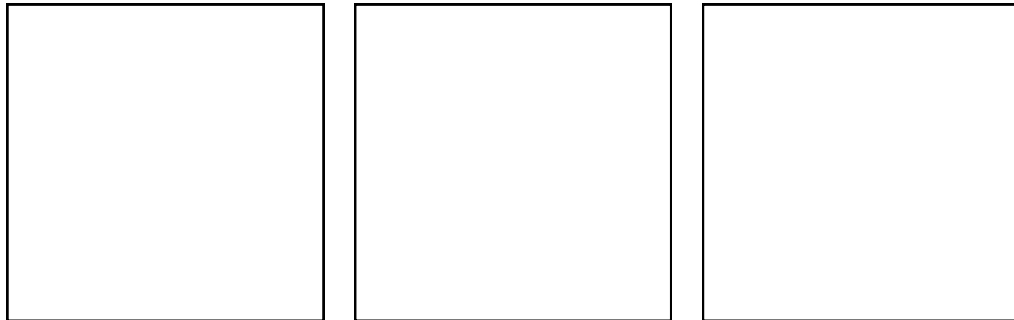
Remember:

- Each shape should be no bigger than 50 x 50mm
- You will be relying on your own hand skills to cut and file each of these shapes, so make sure it is within your capabilities.

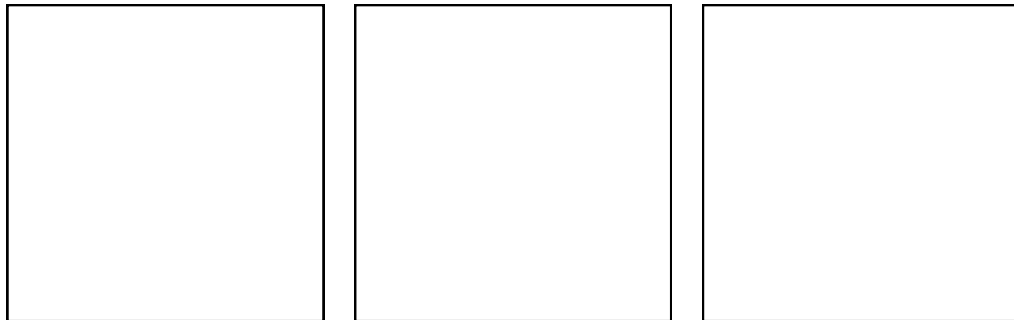
IDEA 1



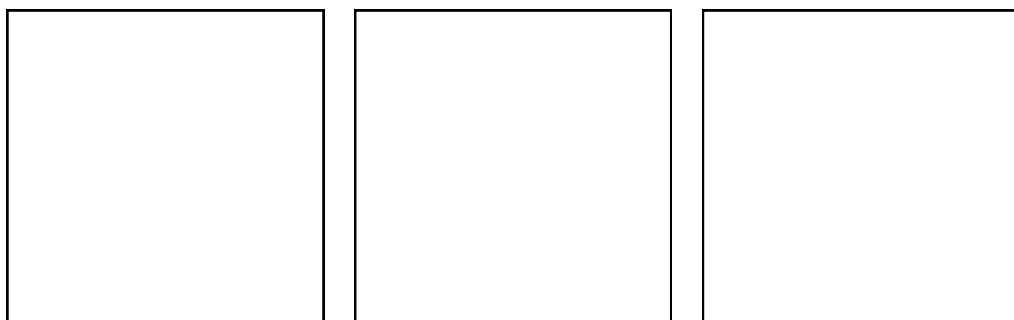
IDEA 2



IDEA 3



IDEA 4



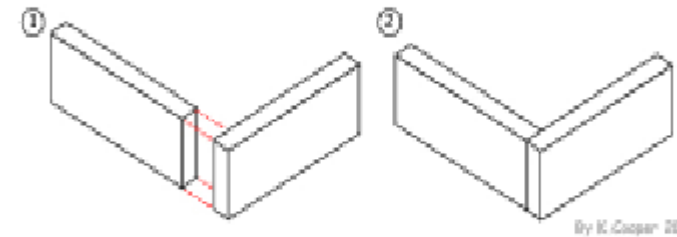
You are now going to choose your two favourite ideas and sketch them on the next page isometrically.

Homework 3: Data Sheet

Once we have our pieces of wood and we have marked out and cut to size, the next stage is to assemble the pieces together using the appropriate joints.

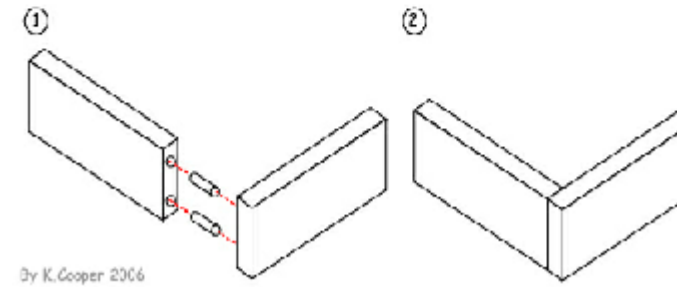
The most important factor that makes or breaks a project is the joinery. That is why it is best to decide on the joints you will use early on in the planning stages.

Some are pictured and described below:



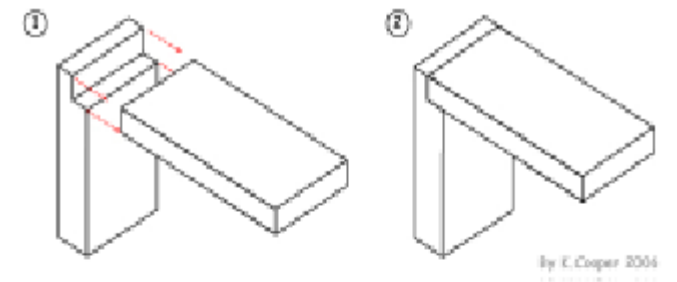
BUTT JOINT:

Butt joints are held together by glue, therefore are very weak. One way to strengthen this joint is to use pins. This process is called "Gluing and Pinning".



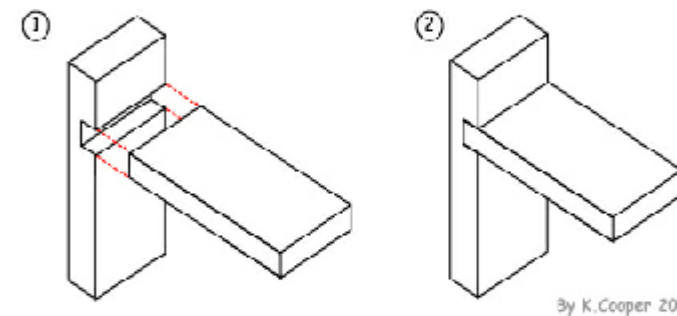
DOWEL JOINT:

This joint consists of drilling accurate holes in both sections of wood and joining them with dowel pegs. Within in industry this is often used to construct flat pack furniture.



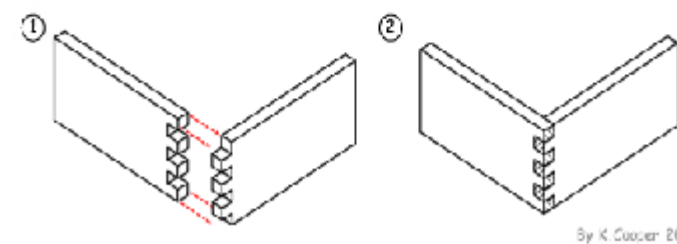
CORNER REBATE:

This joint is a modification of the butt joint made by cutting a rebate in the overlapping piece. This adds more gluing surface and strength than a butt joint.



THROUGH HOUSING:

This joint is used for basic carcass construction when using wide man made boards. This joint is easily cut using a machine router.



FINGER JOINT:

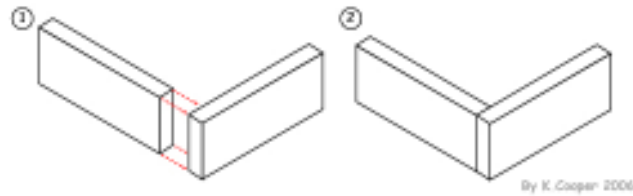
The finger joint can be difficult to make, however it looks very attractive. It has a lot of surface area to glue together, therefore it is the strongest of all the above joints.

Homework 3: Woodwork Joints

All of the information required for homework 3 can be found on the following page- Data Sheet.

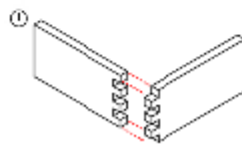
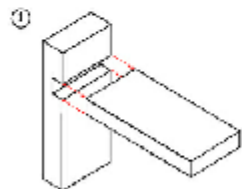
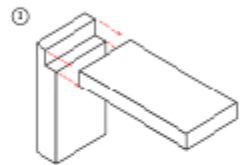
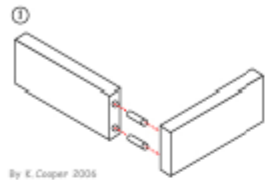
1. Why do you think it is important that we decide on the joints we are going to use in the planning stages?

2. a) Name the joint pictured



b) Name the process used to strengthen this joint

3. In the space below, match each of the woodwork joints to the correct definitions.



Can be difficult to make, however it looks very attractive. It has a lot of surface area to glue together, therefore it is the strongest of all the above joints.

This joint is used for basic carcass construction when using wide man made boards. This joint is easily cut using a machine router.

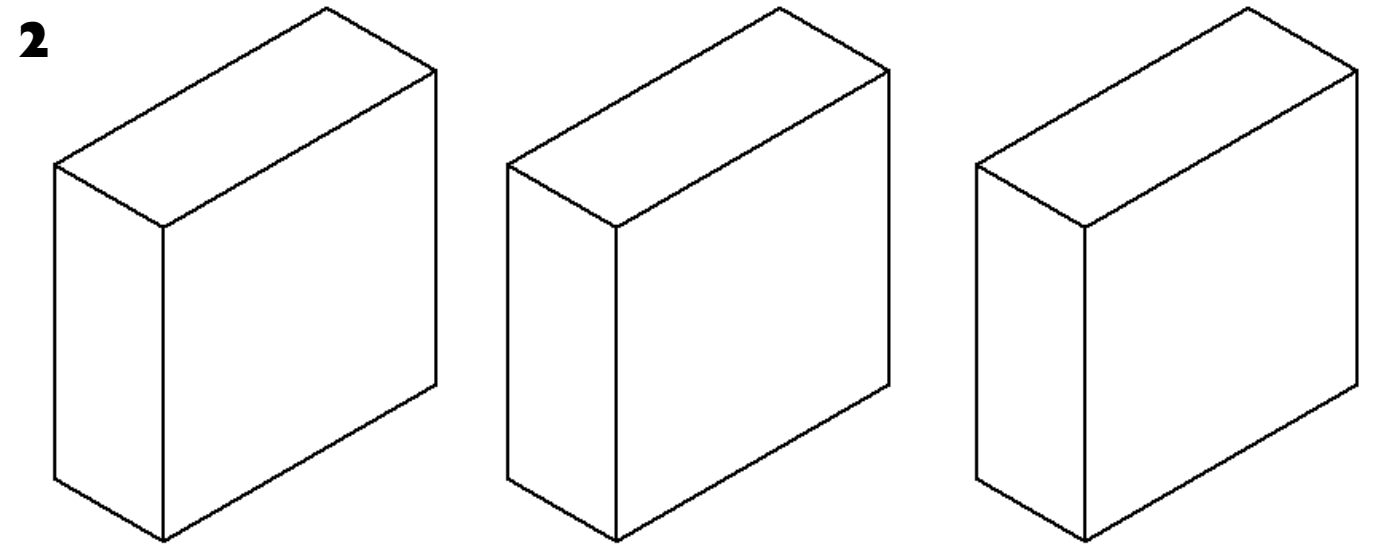
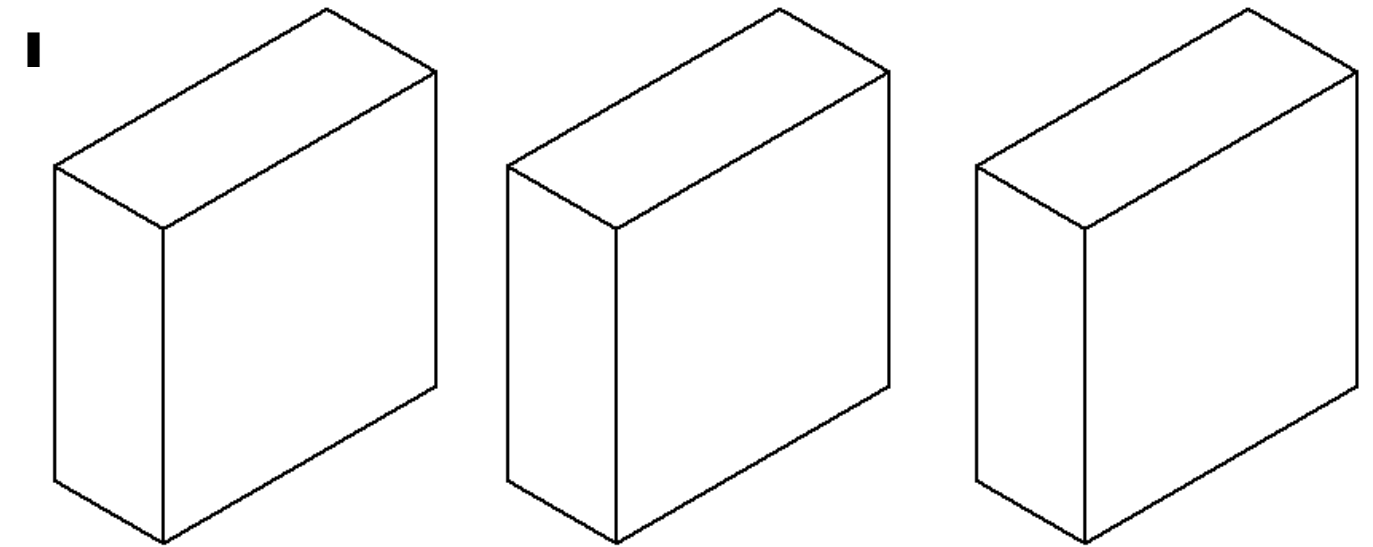
This joint consists of drilling accurate holes in both sections of wood and joining them with dowel pegs. Within in industry this is often used to construct flat pack furniture.

Modification of the butt joint made by cutting a rebate in the overlapping piece. This adds more gluing surface and strength than a butt joint.

Developed Ideas

Now that you have drawn your initial ideas, pick your 2 favourite ideas and draw them within the isometric boxes below.

This is your last chance to change your design so you may redesign one or more of your shapes.



For homework, you are going to ask someone at home for their opinion about your designs. This will help you to evaluate your designs and make a decision about which design should be manufactured.

Homework 2: Client Evaluation

As a designer it is important to take into account the views of others and evaluate your work. Your homework is to show your two developed ideas to someone at home e.g. Mum, dad, sibling etc. Ask them the questions in the questionnaire below and ask them to give each idea a score out of 5 (5 being the best) by shading in the stars.

Factors	Idea 1	Idea 2
How appealing is the design to the target market?	★ ★ ★ ★ ★	★ ★ ★ ★ ★
Creativity	★ ★ ★ ★ ★	★ ★ ★ ★ ★
Complexity	★ ★ ★ ★ ★	★ ★ ★ ★ ★
Overall impact	★ ★ ★ ★ ★	★ ★ ★ ★ ★

Are there any changes you would make? If so, what?

Idea 1

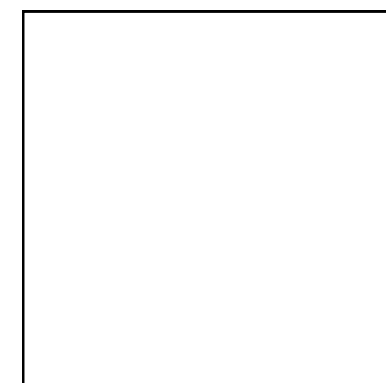
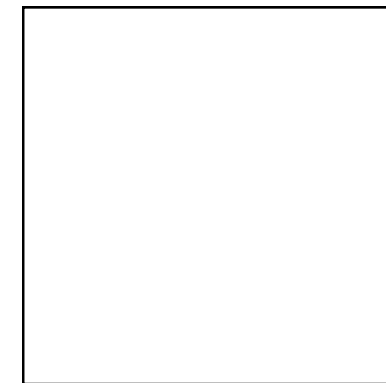
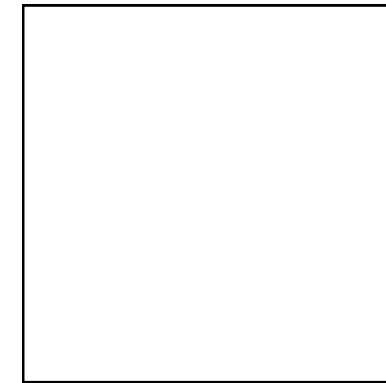
Idea 2

Which idea do you think should be taken forward to the manufacture stage? Why?

Final Idea

Draw your three designs inside the squares below. Your design should fill as much of the square as possible i.e. Do not draw a tiny shape in the middle of the square.

Draw the outline of the shape—surface details are not required at this stage and can be painted / drawn on at the very end of the project.



Once you have finished drawing your ideas, trace them onto plain or tracing paper. You will then cut round your shapes and use them as a **TEMPLATE** for your material.