

In your technology lessons you are making a desk organiser. To become an expert you should be able to design and develop your own desk organiser by designing, sketching and creating a working prototype. Using the worksheet design and make your own desk organiser

Sketch a initial idea here

Sketch a developed idea or a alternative idea here

Annotate and label your design idea by choosing suitable modelling materials to make your design. Be creative and have a look and see what you have in your house



CARD CLAD FOAM BOARD

Foam boards are lightweight and easy to cut and shape. It is ideal for model making, although foam board can be relatively expensive.

Card clad foam board is - foam with thick card applied to either surface.



It can be cut and shaped easily, using hand tools and light equipment such as fretsaws.

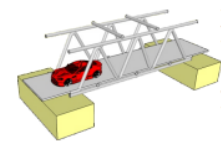
Use the link to learn how to make this



<https://www.bluebearwood.co.uk/diy-origami-pen-pots/>

ART STRAWS

Art straws are ideal for making model structures. They are supplied in a range of colours, shapes and sizes and can be glued or taped together. A good example of a model made from art straws, is a model bridge.



Use the link to learn how to make this



<https://www.youtube.com/watch?v=Y3JSrhqOMxc>

CORRUGATED CARD

Corrugated card is quite thick and relatively strong. It is used for the manufacture of initial / rough models, as it can be cut and shaped easily and is relatively cheap. It can be salvaged from cardboard boxes and sellotaped together to form models.



Use the link to gain ideas



<https://msrachelhollis.com/2013/11/17/new-storage-uses-for-old-things/>

STYROFOAM

Styrofoam is an excellent model making material. It is very light and easy to cut and shape, using a hot wire cutter. It can also be shaped with hand tools and files. It can be painted using water based paints (emulsion paints) giving a really good finish.

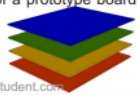
Using styrofoam requires patience, as it can 'crumble' at the edges if care is not taken.



COLOURED CARD

Coloured card is supplied in a range of colours, shades and thicknesses. Card that has different colours on the front and back surfaces can even be bought. It is suitable for colourful models, especially the early stages of making a series of models.

A good example of card as a modelling material, is in the manufacture of a prototype board game.



Use the link to gain more ideas



<https://www.decoist.com/diy-desk-organizer-projects/?chrome=1>

KEY POINTS

- Prototypes are used to test and modify design ideas.
- Prototypes can be physical or virtual models.
- Prototypes often form part of the agreement between a manufacturer and the client.
- Prototypes can be used to show innovative designs and check their viability.
- Rapid prototyping allows small numbers of specialised products to be made economically.
- A rigorous testing and evaluation scheme is important to decide if the product design will be successful.

Check your knowledge and understanding ?

- 1 Name three different materials commonly used for making prototypes.
- 2 Give two reasons why virtual prototyping is used in commercial manufacture.
- 3 List two commercial uses for rapid prototyping.
- 4 Give two ways that a virtual prototype can help a client to decide if a new design is right.
- 5 Identify four ways that a prototype can be evaluated.
- 6 Give three reasons for making a prototype of a new design.



Website address.

<https://edu.sketchup.com/app>

You can login with your school email

Google SketchUp is a free, easy-to-learn 3D-modeling program with a few simple tools to let you create 3D models of houses, sheds, decks, home additions, woodworking projects, and even space ships

CAD – Computer aided design

Work like a designer and create a 3D virtual model of a dog house. Think about the advantages and disadvantages of using CAD

TOOL KIT

Visual	Tool Name & Description
	3D Text - Use this tool to create 3 dimensional geometry from text.
	Push/Pull - Use this tool to push and pull surfaces in your model, allowing you to add or subtract volume from the pieces in your model.
	Rotate - Use this tool to rotate, stretch, distort, or copy entities along a rounded path.
	Follow Me - Use this tool to duplicate the profile of a face along a path.
	Scale - Use this tool to resize and stretch pieces in your model.
	Tape Measure - Use this tool to measure distances, create guide lines or points, or scale a model.
	Offset - Use this tool to create copies of lines and faces at a uniform distance from the originals.
	Move - Use this tool to move, stretch and copy pieces of your model. This tool can also be used to rotate components and groups.

Visual	Tool Name & Description
	Select - Use this tool to "select" the parts of your model you want to work with.
	Paint Bucket - Use this tool to assign materials and colors to pieces of your model.
	Eraser - Use this tool to delete entities. The Eraser tool can also be used to hide and soften edges.
	Rectangle - Use this tool to draw rectangular pieces in your model.
	Circle - Use this tool to draw circles in your model.
	Line - Use this tool to draw edges or lines in your model.
	Freehand - Use this tool to draw irregular hand-drawn lines in the form of curves.
	Arc - Use this tool to draw arcs in your model.

Step 1 – Drawing your Floor

1. Select the rectangle tool by clicking on the icon or by pressing "r" on your keyboard
2. Click once to set the first corner of your rectangle
3. Click a second time to set the second point of your rectangle

Step 4 – Giving your doghouse shape

1. Activate the push/pull tool with the "p" key on your keyboard.
2. Click on the front face of your triangle
3. Click anywhere on the back line of your box. SketchUp will automatically extrude your triangle to the length of your box

Step 6 continued – Give your roof depth with the push pull tool

4. Use the push pull tool to pull your roof over the back side of your doghouse

Activate push pull with the keyboard shortcut "p"

Select materials from the search bar and decorate your design to make it look realistic



Step 2 – Use the push pull tool to create your walls

1. Select the push/pull tool by clicking on the icon or by pressing "p" on your keyboard
2. Click once on the face of your rectangle
3. Move your mouse around until you've found a suitable height, then click a second time

Step 5 – Using the offset tool to set your roof thickness

1. Activate the offset tool with the "f" key on your keyboard.
2. Click on the front face of your triangle
3. Click somewhere outside of your original triangle
4. Delete this line with the erase tool

Step 7 – Drawing your door

1. Activate the rectangle tool using the "r" key on your keyboard
2. Draw your door by clicking twice with the rectangle tool

Step 3 – Set the size of your roof

1. Draw a line straight up from the midpoint of front top line of your box
2. Draw two lines from the tip of your first line to the corners of your box
3. Activate the erase tool using the "e" keyboard shortcut. Erase the middle line on your triangle

Step 6 – Give your roof depth with the push pull tool

1. Select the push/pull tool by pressing the "p" key on your keyboard
2. Select the front face of your roof and pull it forward to give your roof some overhang

Step 8 – Create the door opening

1. Select the face inside the door opening with a single left click
2. Delete this face using the "delete" key on your keyboard