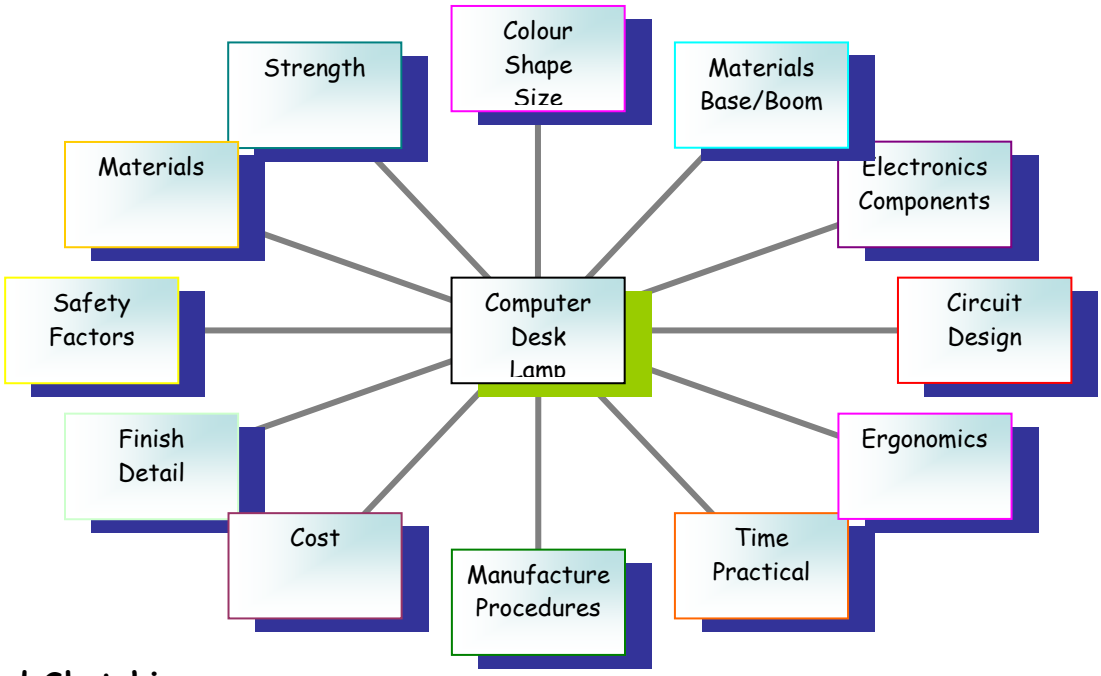
Design Brief: Design and manufacture a Computer Desk Lamp.

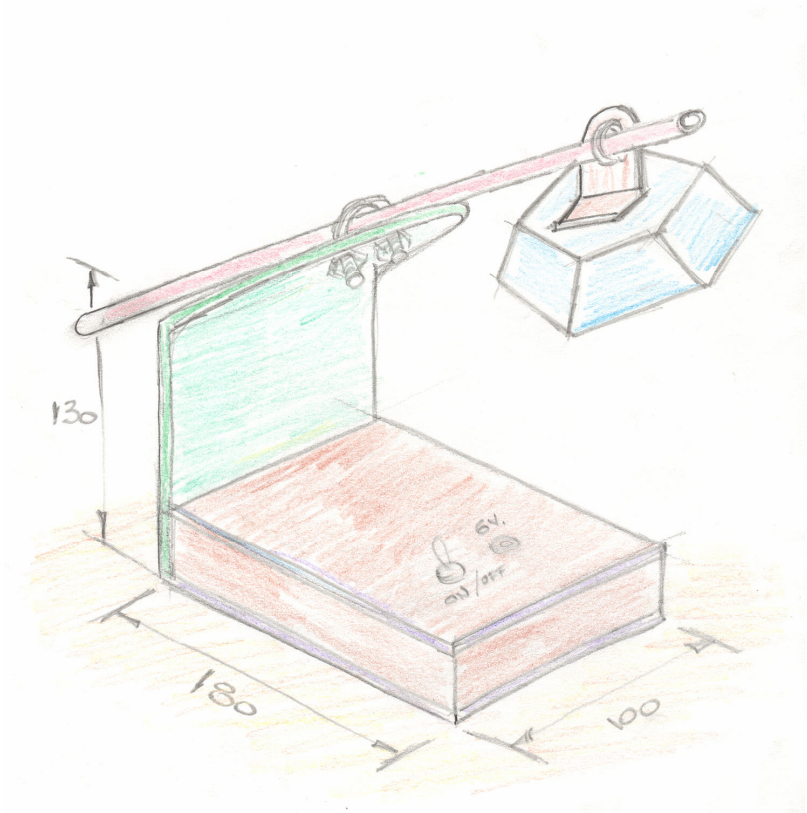
Specification:

1. The Lamp must be a simple design which is attractive to look at
2. The project must incorporate a simple on off switch/bulb circuit
3. It must be suitable for a computer/study desk.

Investigation & Research:

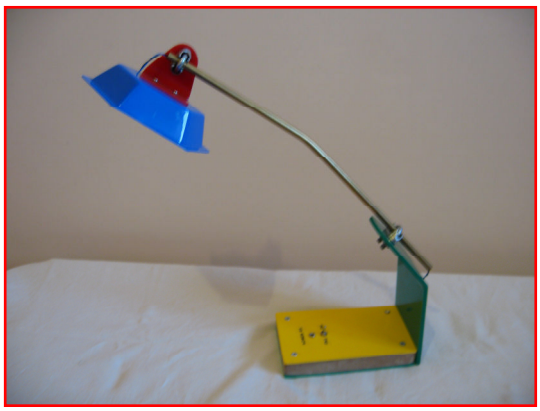


Freehand Sketching:

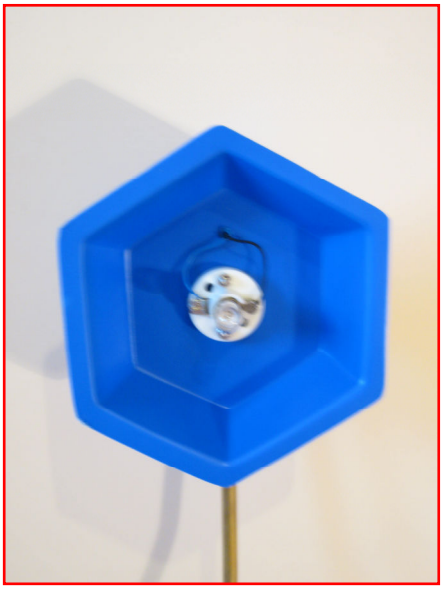


Example of Vacuum forming mould made from MDF

Solution:



Possible Solution



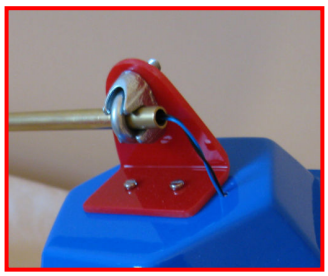
This solution includes:
1. Base to house electronics
2. Back Support
3. Brass tube
4. Shade Bracket
5. Vacuum Formed Shade

Manufacturing Process:

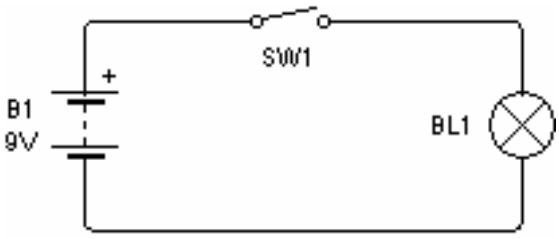
Part	Material	Manufacture
1. Base	MDF 12mm	Electronics housing cut out using the scroll saw. Centre removed to make space for electronic components. Trovicel plastics used as a veneer to top and bottom of MDF
2. Back Support	5mm Acrylic	Countersunk holes to base. Bending to required angle. Drilling holes to fit U bolt
3. Tubing	8mm Brass Tube	Cut to length and slight bend if required
4. Shade Bracket	3mm Acrylic	Marking out, drilling and bending
5. Shade	Vacuum Forming sheet	Vacuum Forming Process
6. Extras	Labelling	

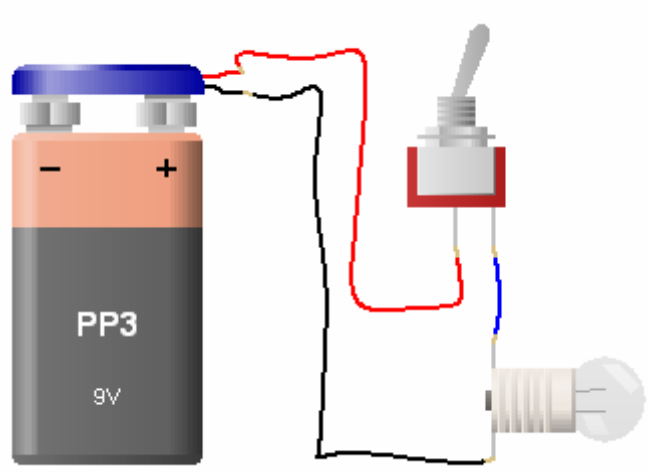
Tips:

A U bolt can be a useful item to help join round material to flat acrylic.



Circuit Diagram:





Shown is a simple bulb circuit which uses a battery, switch and bulb. A 6.5V 300mA Bulb is used to obtain a greater light output. A good idea is to use a Variable power supply and jack socket (as shown) as this eliminates the need for an expensive 9V PP3 battery.

This power supply can be used to power other Technology projects.

Miniature Jack Socket

Variable Power Supply

Bulb Holder

Factors to Consider:

Working with plastics/wood, drilling, bending, filing, gluing/adhesives, vacuum forming process, soldering process, electronics and general assembly.

Other possible solutions:

This solution has an ash base with centre removed to house electronics. A 5mm bracket is used to support the boom. The boom has holes drilled to adjust the length of the boom. A wind nut is able to hold the shade in place at an angle. The shade is vacuum formed from MDF.

This solution again has an ash base with centre removed to house electronics. A 5mm acrylic bracket is used to support the boom. The boom is screwed to the bracket for permanent positioning. A wind nut is again used. The shade is vacuum formed from an MDF mould.

Applications for Leaving Certificate Technology: Another circuit which could be used in this design is a **dark sensor - Darlington or op amp** circuit. This circuit could be used to detect a small change in light level thus tuning on the bulb. A **touch sensitive circuit** could also be incorporate into another design. Another application might be **computer table lamp to incorporate a study aid like a 555 timer circuit**