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| It is not necessary to complete all these stages in this order | 2D Design | Draw the pieces of your torch on 2D design  Put your name on the bottom piece  Save in your LED torch folder on your H drive  Screen print it for your portfolio  When using this in your portfolio, explain what you did to create it.  Write about the drawing tools, the delete tools, the grid and the toggle tool. |
| Circuit wizard – Circuit design | Using circuit wizard, create a circuit that will switch an LED on and off, using a PTM switch, LED, Resistor and 3V battery. You will need to change the values of the resistor and the battery  Save in your LED torch folder on your H drive  Screen print it for your portfolio  When using this in your portfolio, explain what you did to create it.  Write about the different components, where you found them and what they do/how they work |
| Circuit wizard – PCB design | Using circuit wizard, create a PCB from the circuit you have drawn.  Save in your LED torch folder on your H drive  Screen print different views for your portfolio  When using this in your portfolio, explain what you did to create it.  Write about the ‘artwork’, ‘real life’ and the with/without components tabs. |
| Clean and drill PCB | Clean the PCB and drill the correct size holes.  Take pictures for your portfolio  Write about what you have achieved at this stage. Explain in detail, label the picture and use keywords correctly. |
| Populate and solder PCB | Select the right components  Place them on the board the correct way round  Remember that some components have a positive and negative  Solder them onto the tracks  Take pictures for your portfolio  Write about what you have achieved at this stage. Explain in detail, label the picture and use keywords correctly. |
| Complete stage 1 of work sheet | Save your work in the H drive  Answer all the questions in full, using correct key terminology where needed.  When complete save it again. |
| It is not necessary to complete all these stages in this order | Complete stage 2 of work sheet | Save your work in the H drive  Answer all the questions in full, using correct key terminology where needed  When complete save it again |
| Complete the portfolio | Save your work in the H drive  Using the example ‘step 1 cleaning the PCB’ as a guide, write a detailed step-by-step guide of what you have done to complete your project, use lots of ‘thumb nail’ photos & screen shots, labeling them and explaining using keywords.  When complete save it again |
| Assemble the torch case | Collect all five pieces of acrylic, M3X12 screws, screwdriver, adhesive copper track and tensol glue.  Take pictures for your portfolio  Write about what you have achieved at this stage. Explain in detail, label the picture and use keywords correctly. |
| Clean and polish torch case | When your torch is assembled talk to your teacher about cleaning and polishing the edges, (there is no tutorial for this).  Take pictures for your portfolio  Write about what you have achieved at this stage. Explain in detail, label the picture and use keywords correctly. |
| Green-pen your work. | Proof read your work, get someone else to proof read your work (an adult that looks after you) work to the ‘green pen’ system.  Have it ready to hand in on the deadline set by your teacher at the beginning of the project. |
| Solid Works | As an extension task, you could have a go at creating a 3D model of your torch in Solid Works. Your teacher will be able to guide you or there is a lunchtime club you can join.  Only do this when you have completed all tasks set and are satisfied you have ‘green-penned’ your work. |

Remember to take lots of photos and screen shots as you go along.

You will use them in your portfolio. It is better to have too many than not enough,

BUT make sure they are no larger then 50mm x 50mm *(5cm x 5cm).*