The marking from this unit of work is to go towards the TSM1 in addition to the soldering licence and first base line test.

The use of the base line test again at the end of this unit is to show what learning has been achieved. This could be used as a comparative in your TSM reports.

Please reiterate the importance of Gantt charts in project work as a means of managing targets, timescales and deadlines for individual learning. Time spent throughout this unit and further units of work will not be wasted in the long run, especially as the pupils work towards their GCSE and independent learning.

Level 4

Pupils generate ideas by collecting and using information. They take users’ views about aesthetic and technical issues into account as they respond to briefs. They communicate alternative ideas using words, labelled sketches and models, showing that they are aware of constraints. They apply their knowledge and understanding of materials, ingredients and components, and work with them with some accuracy, paying attention to quality of finish and to function. They use some ideas from others’ designing to inform their own work. They produce step-by-step plans and then select and work with a range of tools and equipment. They identify what is working well and what could be improved to overcome technical problems. They reflect on their designs as they develop, recognising the significance of knowledge and previous experience.

Level 3

Pupils generate ideas and recognise that their designs have to meet a range of different needs. They make realistic plans for achieving their aims. They clarify ideas when asked and use words, labelled sketches and models to communicate the details of their designs. They think ahead about the order of their work, choosing appropriate tools, equipment, materials, components and techniques. They use tools and equipment with some accuracy to cut and shape materials and to put together components. They identify where evaluation of the design and make process and their products has led to improvements.

**This unit of work is to aid pupils to achieve National Curriculum level 3 to 4.**

The pupils should be encouraged to ‘make realistic plans for achieving their aims’. ‘They think ahead about the order of their work, choosing appropriate tools, equipment, materials, components and techniques’. ‘They use tools and equipment with some accuracy’. ‘They apply their knowledge and understanding of materials and components, and work with them with some accuracy, paying attention to quality of finish and to function’. ‘They produce step-by-step plans and then select and work with a range of tools and equipment’. ‘They identify what is working well and what could be improved to overcome technical problems’.

Generating, reflecting and evaluating their own ideas to make improvements is something that will be worked upon more in other units of work, that will help them secure level 4 and head with confidence into level 5 and beyond.

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| Lssn | Activity,  Teacher led | Learning,  Pupils will understand and be able to explain | Homework |
| 1 | Introduction to the torch  Expectations from project, theory and practical  Walk through list of project activities  Time scale, Gantt chart  Open drive and new folders in H drives  Hand out PCBs  Input on the drill  Input on cleaning PCB  Start practical  Start theory programme | How to create and use a Gantt chart  Responsible and importance of time keeping  Navigating and using tutorials  Importance of cleaning the PCB  Safety of drilling on both drills  Accurate drilling  5 lessons including this one | To read and understand the introduction of the project and complete the Gantt chart ready to work from next lesson. |
| 2 | Check all have completed the HW  How to work from the Gantt charts.  Working around each other  Safety in the work shop  Input on soldering, particular attention to positioning the LED  From ‘the pit’  Input into 2D design | 2D design basic drawing tools  Safe soldering  Pupils will work individually on their projects according to their own Gantt charts, which will be on the screen at all times.  4 lessons including this one | Personalised according to their plans.  Should be written in their diaries to work with their Gantt charts. |
| 3 | Safety in the workshop  Gantt charts to be opened on pupils desktops  Input on LEDs  Input on Resistors  Input into switches  Input into batteries/cells  From ‘the pit’  Input on circuit wizard, circuit design | Circuit wizard, circuit design.  Basic component knowledge to be expanded on through individual research as homework and shown in the portfolio  Individual activities and learning from the personal Gantt charts  3 lessons including this one | Personalised according to their plans.  They should be working on their portfolio parts of their theory now.  Should be written in their diaries to work with their Gantt charts. |
| 4 | Safety in the workshop  Gantt charts to be opened on pupils desktops  Input into plastics  Input fixings  Input into assembly  From ‘the pit’  Circuit wizard, PCB design | Circuit wizard, PCB design  Basic plastic and fixings knowledge to be expanded on through individual research and shown in the portfolio  Individual activities and learning from the personal Gantt charts  2 lessons including this one | Personalised according to their plans.  They should be working on their portfolio parts of their theory now.  Should be written in their diaries to work with their Gantt charts. |
| 5 | Safety in the workshop  Gantt charts to be opened on pupils desktops  Input into cleaning and polishing the finished torch.  **Last lesson**, next lesson consolidation of learning quiz | Last lesson, hand in next lesson  How to polish the edges of plastic,  The importance of a high quality finished product. | Mop up homework and lunch time sessions.  Ready for deadline |
| 6 | Consolidating learning in a test of knowledge  Polish off and hand in projects.  Show where the next project introduction is and talk about the timeline for homework.  Socrative base line quiz | Consolidating learning in a test of knowledge  Polish off and hand in projects. | Look into next project. Produce a Gantt chart for the next project |