



Subject: DT

Module 4 LDR – Night Light Project

Overarching Topic:			
<p>Why is this topic being studied at this time?</p> <p>How does it fit into the wider subject curriculum?</p>	<p>Building on Year 7 electronics systems knowledge from Micro:Bits project of input, process and output, students create their own working circuit board for a LDR light sensor. Student’s design this product for users in developing countries, linking their social and cultural research into their designing. Students will build their understanding of being considerate towards others as they look to link systems theory with making products for other’s needs.</p> <p>This project is taught in Year 8 as student’s build their fine motor skills to accurately solder a PBC. Students will be able to take a finished and fully working product home which will enhance their love of learning DT.</p>		
	Critical	Core	Pinnacle
<p>The Big Questions (What questions will students be able to answer upon mastery of the topic?)</p>	<p>What is a developing country? What is a smart material? What does it mean to be sustainable when designing products? What do the key components do? (Resistor, LED, LDR, Transistor) What is the purpose of soldering? What are the health & safety risks and controls when using a soldering iron?</p>	<p>Would the wants & needs of a user differ between a developed and developing country? What is phosphorescent pigment? What is the Sustainability 6Rs? How can I use them to influence my designs? How to use story boards to explain electronic processes? How do I use build my skills of using tools/equipment in the workshop? Can I effectively use the pillar drill, soldering iron and strip heater. How can jigs be used to enhance quality of products which I make?</p>	<p>How can smart materials be used to reduce energy consumption? What are the social impacts of being sustainable? What are the economic impacts of being sustainable? Analyse the relationship between Quality Control, Quality Assurance and Health & Safety. How is QA/QC used in commercial manufacturing of modern products? Evaluate the effectiveness of your practical outcome against your brief. How would the introduction of more automatic systems and sensors impact your life? Evaluate the use of a LDR in terms of sustainability.</p>

The Key Skills/ Techniques	The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.	
	Skill/Technique	How will this skill be developed?
	Evaluating different users wants and needs	Comparison of an existing customer profile of a developed country and their creation of a profile of a user from a developing country.
	Research into sustainability	Following research of 6Rs, materials and processes, students debate its effectiveness for the project.
	Effective use of CAD/CAM to create a high quality holder	Creating a holder for the student's circuit board on 2D design
	Effective soldering	Theory explained and teacher-led tutorials before every student attempts on their own circuit board.