

<b>Design Technology: Using design influences to meet a brief – Year 7 - 9 lessons</b>		
<b>Use visual research on the Gaudi Temple to create a range of ideas for a torch that meets a given brief and making the torch</b>		
<b>Substantive knowledge: Practical</b> (knowing what) Designs are created from a range of influences in culture and history. CAD/CAM can be used to create multiple identical components that may have an increased quality level quicker	<b>Substantive knowledge: Theoretical</b> <b>Design/Designers</b> Gaudi who used a range of influences to produce an eclectic building and Zaha Hadid, who produces modern architecture with a contrasting style CAD/ Adrian Newey (F1 car designer) to demonstrate the scope of CAD/CAM and fluid flow dynamics.	<b>Disciplinary knowledge</b> (knowing how to) Creating design using similar influences used to design the Gaudi temple and applying the design to a torch they manufacture Use the extrude tool on a surface to create a simple button for the torch using CAD (Onshape)/CAM (3D printer)
<b>Specialisms</b>	Graphic design and basic electronics to create a torch	
<b>Materials</b>	Design mood boards of cultural influences on the Gaudi Temple, paper, pen, pencils	Creating design for torch using card, pens, pencils. Assembling torch components – acrylic front and back, foam middle, LED, coin battery and own design on card, Onshape, computers and 3D printer
<b>Tools to create the product</b>	Card, pencils, pens, Computer, Onshape, 3D printer, Battery, LED, Foamboard	
<b>Key vocabulary</b>	creative, style, Culture, Catholic, Islamic, Gothic, Pattern, shape, colour, tone, workplane, extrude, surface, assemble, battery, LED	
<b>Reading</b>	Encourage scanning technique to pick out important information regarding Gaudi temple design influences.	
<b>Golden threads – research, design, make, evaluate</b>	<b>Research</b> aspects of the Gaudi Temple, <b>Design</b> torch faces, <b>make</b> by assembling components of the torch and <b>evaluate</b> the final torch against the given brief	
<b>Cultural capital</b>	Exploration of the rich variety of cultures that have influenced the Gaudi Temple that students may not have experienced before and an understanding that cultural influences can be combined to produce creative designs.	
<b>What prior knowledge needs to be revisited to underpin the learning of new content</b>	Experiences in these areas in KS2 vary. The project aims to consolidate prior learning and establish a base level through observation in practical tasks. No prior knowledge assumed in 3D CAD. <ul style="list-style-type: none"> <li>- Students should recognise how the materials used to make the torch are suitable for the purpose from exploration in previous project</li> </ul>	
<b>Common Misconceptions</b>	<ul style="list-style-type: none"> <li>- Students often do not use the inspiration to design therefore fail to meet the brief</li> <li>- In CAD they struggle to recognise a whole shape by adding additional lines or gaps that will cause the extrude feature to fail.</li> <li>- Students often get the legs of an LED the wrong way round on the battery</li> <li>- Not buffering the LED on the battery therefore the LED remains on constantly not just when pressed.</li> </ul>	
<b>How can the content be extended for HPA?</b>	<ol style="list-style-type: none"> <li>1. More independence in practical tasks encouraged with the aid of instructions</li> <li>2. Higher level of technical terminology and greater descriptive detail expected in evaluation</li> </ol>	

<b>How can the content be adapted for SEND</b>	<ol style="list-style-type: none"> <li>1. Instructions/ tasks chunked on cream paper with wide spaces between words if required</li> <li>2. More support in practical work may need to be given depending on the nature of the need.</li> <li>3. Some may produce a less technical outcome in practical work depending on the nature of the need</li> <li>4. Evaluation outline if required</li> </ol>	
<b>What is the homework?</b>	<ol style="list-style-type: none"> <li>1. Edpuzzle Videos and quizzes on CAD/CAM</li> <li>2. Edpuzzle videos and quizzes on basic electric circuits</li> </ol>	
<p style="text-align: center;"><b>Lesson objective <i>and misconceptions</i></b></p> <ol style="list-style-type: none"> <li>1. Explore the inspirations used in the Gaudi temple</li> <li>2. Draw relevant shapes, patterns and colours from the inspiration mood boards. <i>Students often draw too much rather than picking small parts for the inspirations</i></li> <li>3. Create 3-5 initial design ideas for the torch front and back using the research as inspiration. <i>Students need to be reminded to stick to their inspiration choices.</i></li> <li>4. Develop chosen idea with notes to show why it is the most suitable.</li>   <li>5. Create torch back and front. <i>Emphasise quality</i></li> <li>6. Explore the basic functions of Onshape 3D CAD. Introduce Adrian Newey as an example.</li> <li>7. Create design for the torch button on given template</li> <li>8. Assemble torch components and photograph the torch.</li> <li>9. Evaluate torch outcome, particularly how well it met the brief.</li> </ol>	<p style="text-align: center;"><b>Assessment and success criteria</b></p> <ol style="list-style-type: none"> <li>1. Exit quiz. <i>Students should be able to recognise that the styles have similarities and differences</i></li> <li>2. Self-assessment using checklist. <i>Students should have a range of inspirations to draw from</i></li> <li>3. Self-assessment using given checklist. <i>Students should have more than one design idea that is neat and uses their inspiration choices</i></li> <li>4. Teacher written assessment to ensure design could be successful. <i>Students should reference the brief and state materials needed to complete the design (pens, pencils, vinyl, card)</i></li> <li>5. Self-assessment using given checklist. <i>Design should be neat and match the chosen idea drawn.</i></li> <li>6. Exit quiz. <i>Students should practise more than one command. Note that it is not necessary to understand exact command procedure but should understand what is possible.</i></li> <li>7. Self-assessment using checklist. <i>Torch button should be secure and submitted for 3D printing</i></li> <li>8. Self-assessment using checklist. <i>Torch should function, be secure and be neat.</i></li> <li>9. Final teacher grade given. <i>Students should make reference to the design in relation to the brief, the materials and the quality of the finished piece.</i></li> </ol>	