

Dog Lamp/Speaker



Product Design		Year 9 Dog Lamp Speaker Project			Target Levels 5-7		9-13 weeks 2 lessons Per Week		
<p>This project will allow students to experience a variety of processes that could/would be used when completing the Product Design course at GCSE level. Students will Design and Create a product with some more advanced electronic components exploring design development and a more hands on manufacture approach. Once students have completed the design process they will use CAD CAM to recreate the product whilst manufacturing a simple circuit for light (LED's) or Speakers. Learners will consider manufacturing and restraints on their designs to meet their specification. Students will also identify different manufacturing production including Mass, Batch and Bespoke / one off.</p>									
LESSON OUTLINES	Week	Objectives	Focus	PLT Focus	Activity & Homework	Outcomes	H&S		Resources
	1	<ul style="list-style-type: none"> Discover potential problems / opportunities from a context brief Using a mind map create a specification from the context. 	Research & Investigation	IE	<ul style="list-style-type: none"> Identify the context of the problem and develop a brief by creating a Mind Map of potential problems / opportunities. HW Collect images of existing Scenes and Themes for your own project 	<ul style="list-style-type: none"> Mind Map of potential direction Understanding of context 	<ul style="list-style-type: none"> N/A 		<ul style="list-style-type: none"> Presentation Books Assessment criteria Pintrest http://www.bbc.co.uk/schools/gcsebitesize/maps/index.shtml
	2	<ul style="list-style-type: none"> Apply knowledge of problem to investigations and research to analyse existing products and themes Investigate and identify manufacturing production. 	Research & Investigation	IE	<ul style="list-style-type: none"> Investigate research and explore areas of research appropriate to context and brief. Research manufacturing Processes: Mass, Batch, One off and continuous Production HW 5 	<ul style="list-style-type: none"> Understanding of manufacturing productions Analysis of research 	<ul style="list-style-type: none"> N/A 		<ul style="list-style-type: none"> Books Research Pintrest
	3	<ul style="list-style-type: none"> Explore ideas by sketching developing ideas considering elements of the specification details Man Made Materials investigation and their uses 	Development of design proposals	CT	<ul style="list-style-type: none"> Create several initial design ideas (idea diarrhoea) Using this then to draw three concepts that may be used annotated in detail +'s and -'s of each then create a final Design Idea labelled and annotated with dimensions. Using FOCUS e-Learning identify 3 Man Made Boards and identify their qualities & identify 3 items in your house that are made from it (take pictures if possible). 	<ul style="list-style-type: none"> Design Ideas at different levels Detailed Final Design idea 	<ul style="list-style-type: none"> N/A 		<ul style="list-style-type: none"> Books Drawing equipment
	4-7	<ul style="list-style-type: none"> Develop final design idea ready to execute modelling using several techniques Advantages & Disadvantages of using CAD/CAM Demonstrate making skills in completing product including exploring basic electronics 	Making / Development of Design proposals	CT SM RL	<ul style="list-style-type: none"> Using knowledge from the design ideas students are to recreate in 2D & 3D Design ready for Laser cutting & 3D printing Using knowledge from previous DT lessons students will create a product following direction and techniques. Draw a Comic Strip layout of how to laminate wood. Access Focus e-Learning and research Injection Moulding, Vacuum Forming and Blow Moulding Complete the following quizzes: <ul style="list-style-type: none"> Vacuum Forming Blow Moulding Injection Moulding 	<ul style="list-style-type: none"> Completed assembly of proposed design ideas Product made from laser printing, 3D & other making techniques. Brief evaluation of final product on projected printout. Product made from laser printings Electronic circuit produced for 5V USB 	<ul style="list-style-type: none"> Use of laser printers (radiation, Fumes) Ventilate area Use of laser printers (radiation, Fumes) Ventilate area Sharps and abrasives Glue / solvents Heat Soldering Iron 	<ul style="list-style-type: none"> Laser printers PC's 2D Design General wood / plastic working tools Laser Printer Solvent / Glue Soldering Iron 	

8-9	<ul style="list-style-type: none"> Evaluate product against original context and brief 	Evaluation and Reflection	RL	<ul style="list-style-type: none"> Using CAFÉ QUE revisit the specification for the scene product and reflect on your work to see if you have met the original needs and wants of the context audience. 	Completed evaluation and notes/comments on book work.	It's Learning and appropriate templates.	Computers and access to templates / resources.
EXT	<ul style="list-style-type: none"> Explore different techniques quickly using appropriate materials Develop a product that meets a given function / use. 	Creating a product for a specific purpose	IE CT TW EP	<ul style="list-style-type: none"> Design a small sticker of your choice: Band; funny; info... Develop using illustrator and or Photoshop working to specific restrictions. Improve CAD drawing 	Finished Graphics and Sticker printed	<ul style="list-style-type: none"> Use of Craft Knives Use appropriate equipment for task 	<ul style="list-style-type: none"> Craft Knives Cutting Mats Application Tape

Assessment

LEVELS	Design	Making	Evaluation
7 SOME	<ul style="list-style-type: none"> I can seek out relevant information sources to research details of my ideas. and produce a detailed specification My work shows originality, innovation and creativity, and I can change/modify my ideas in light of research, knowledge and understanding. I consider user needs, health and safety and issues of sustainability when making decisions about their products. I can annotate my design ideas and, where appropriate, model them in order to help development. I communicate my ideas using a range of skills including the use of CAD 	<ul style="list-style-type: none"> I can order and sequence the manufacture of my product, and use tools and equipment safely with increasing precision. I can make changes in the light of unforeseen problems. I am able to choose from a range of materials and produce products to a high standard of construction, and finish 	<ul style="list-style-type: none"> I can evaluate the final product, comparing it with the original specification, and identify possible improvements.
6 MOST	<ul style="list-style-type: none"> I can identify and use a range of information sources to research my product and develop a specification I can recognise the need to refine or change my ideas in the light of my research, user needs, health & safety, and sustainability. I can produce formal drawings/patterns/recipes with details of manufacture using a range of skills, including the use of CAD. 	<ul style="list-style-type: none"> I can sequence the manufacture of my product and use tools and equipment accurately. I can deal with problems along the way. Choosing from a range of materials, I can produce an appropriate standard of construction and finish 	<ul style="list-style-type: none"> I can evaluate my final product by comparing it with the original specification and suggest improvements.
5 ALL	<ul style="list-style-type: none"> I can develop an outline of a design specification/recipe using information gathered from a variety of sources. I can think of a number of imaginative ideas for products considering the users health and safety and sustainability. I can research a range of ideas using sketches, models and/or ICT, and make choices between them based on my knowledge and understanding. I can produce drawings with outline dimensions and sequence what I am going to do. 	<ul style="list-style-type: none"> I can select and use appropriate tools and equipment to measure, mark out, cut, and join a range of materials I can produce products of an acceptable quality, and function. 	<ul style="list-style-type: none"> I can evaluate my work as it develops, bearing in my original design.

ICT Skills	Skills & Knowledge	Technical Language
<p>In this project ICT will be used in order to develop the students design proposals. 2D Design software allowing students to create and make (CAD CAM) their model on computers. Students will also use ICT to present their work and investigate sources.</p> <p>Other CAD including Adobe Illustrator and Photoshop to complete EXT task</p>	<p>PRIOR: Some basic 2D Design Skills Some Context development of design proposals Basic Knowledge of manufacturing processes</p> <p>GAINED: Moderate skill base using 2D Design Knowledge of manufacturing Production Knowledge of Laser cutting and setting up of system Ability to compare and evaluate work based on reflection of comments etc.</p>	<p>Context Specification Manufacture Investigations Plastic recycling Evaluate</p>

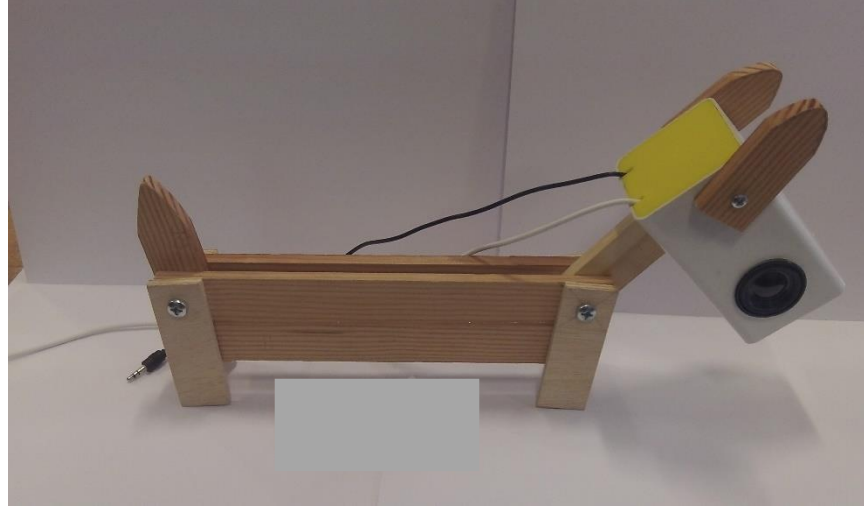
Differentiation (All, Most & Some)	Health & Safety	PLTS Focus Areas
<p>Most should have completed a design and developed a context some use of CAD CAM All should have a completed a design of a Coin holder and manufactured caps using CAD CAM Some will have developed a context developing a product of high quality that would be suitable for commercial purposes</p>	<p>Laser Cutting Fumes & Radiation General Health and safety (Hand Tools) Sharps and abrasives Pillar Drill (if drilling electronic access) Soldering Iron</p>	<p>Reflective Learners (Identifying Areas of improvement in evaluative and reflective comments throughout work and evaluation. Self-Manager (using time wisely and working on design process methodically. Development of work in and out of school. Individual learning.</p>

Assessment Examples

Level 5 (All)



Level 6 (Most)



Level 7 (Some)



Independent enquirers

Focus:

Young people process and evaluate information in their investigations, planning what to do and how to go about it. They take informed and well-reasoned decisions, recognising that others have different beliefs and attitudes.

Young people:

- identify questions to answer and problems to resolve
- plan and carry out research, appreciating the consequences of decisions
- explore issues, events or problems from different perspectives
- analyse and evaluate information, judging its relevance and value
- consider the influence of circumstances, beliefs and feelings on decisions and events
- support conclusions, using reasoned arguments and evidence.

Team workers

Focus:

Young people work confidently with others, adapting to different contexts and taking responsibility for their own part. They listen to and take account of different views. They form collaborative relationships, resolving issues to reach agreed outcomes.

Young people:

- collaborate with others to work towards common goals
- reach agreements, managing discussions to achieve results
- adapt behaviour to suit different roles and situations, including leadership roles
- show fairness and consideration to others
- take responsibility, showing confidence in themselves and their contribution
- provide constructive support and feedback to others.

Creative thinkers

Focus:

Young people think creatively by generating and exploring ideas, making original connections. They try different ways to tackle a problem, working with others to find imaginative solutions and outcomes that are of value.

Young people:

- generate ideas and explore possibilities
- ask questions to extend their thinking
- connect their own and others' ideas and experiences in inventive ways
- question their own and others' assumptions
- try out alternatives or new solutions and follow ideas through
- adapt ideas as circumstances change.

Self-managers

Focus:

Young people organise themselves, showing personal responsibility, initiative, creativity and enterprise with a commitment to learning and self-improvement. They actively embrace change, responding positively to new priorities, coping with challenges and looking for opportunities.

Young people:

- seek out challenges or new responsibilities and show flexibility when priorities change
- work towards goals, showing initiative, commitment and perseverance
- organise time and resources, prioritising actions
- anticipate, take and manage risks
- deal with competing pressures, including personal and work-related demands
- respond positively to change, seeking advice and support when needed
- manage their emotions, and build and maintain relationships.

Reflective learners

Focus:

Young people evaluate their strengths and limitations, setting themselves realistic goals with criteria for success. They monitor their own performance and progress, inviting feedback from others and making changes to further their learning.

Young people:

- assess themselves and others, identifying opportunities and achievements
- set goals with success criteria for their development and work
- review progress, acting on the outcomes
- invite feedback and deal positively with praise, setbacks and criticism
- evaluate experiences and learning to inform future progress
- communicate their learning in relevant ways for different audiences.

Effective participators

Focus:

Young people actively engage with issues that affect them and those around them. They play a full part in the life of their school, college, workplace or wider community by taking responsible action to bring improvements for others as well as themselves.

Young people:

- discuss issues of concern, seeking resolution where needed
- present a persuasive case for action
- propose practical ways forward, breaking these down into manageable steps
- identify improvements that would benefit others as well as themselves
- try to influence others, negotiating and balancing diverse views to reach workable solutions
- act as an advocate for views and beliefs that may differ from their own.