Block Bot Project

Product **Design**	Year 7 Block Bot	Target Levels 3-5	9-13 weeks 2 lessons Per Week

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 wooden product exploring design development and a more hands on manufacture approach. Once students have completed the design process they will complete a basic product looking at the basics in working in the workshop, alongside H&S and using tools correctly and using correct process. 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.

	Week	Objectives	Focus	PLT Focus	Activity & Homework	Outcomes	H&S	Resources
LESSON OUTLINES	1	• Identify targets and record in book for new project • Discover potential problems / opportunities from a context brief • Using a mind map create a specification from the context. • Health and safety Talk and worksheet to complete	Research & Investigation	IE	• Add to Target sheet for beginning of each module • Identify the context of the problem and develop a brief by creating a Mind Map of potential problems / opportunities. • Complete and mark H&S sheet of processes to be used • HW Collect images of existing Scenes and Themes for your own project	• Targets • Mind Map of potential direction • Understanding of context • Understanding importance of H&S	• N/A	• Presentation • Books • Assessment criteria • Pintrest • http://www.bbc.co.uk/schools/gcsebitesize/maps/index.shtml
	2	• Apply knowledge of problem to investigations and research to analyse existing products and themes • Investigate and identify manufacturing production.	Research & Investigation	IE	• Investigate research and explore areas of research appropriate to context and brief. • Research First Angle & Third Angle and identify differences with diagrams.	• Understanding technical presentations • Analysis of research	• N/A	• Books • Research • Pintrest
	3	• Use technical drawings of basic shapes to be developed on and improved with more complex shapes: • Orthographic • Isometric • Explore ideas by sketching developing ideas considering elements of the specification details	Development of design proposals	CT	• Use technical drawings to present product in different ways ahead of making. • Create several initial design ideas 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**. • Select three different types of wood that might be suitable for project	• Design Ideas at different levels • Detailed Final Design idea	• N/A	• Books • Drawing equipment
	4-6	• Using correct techniques complete making tasks of product • Reflecting back at designs design and decorate the product appropriately for project • Using CAD /CAM create additional features for product.	Making / Development of Design proposals	CT SM RL	• Using knowledge from previous DT lessons students will create a product following direction and techniques. • Using a Comic Strip Template describe the techniques used when making the Block Bot including how to use the Pillar Drill & Disk Sander Safely.	• Completed product with additional accessories from CAD/CAM 3D printing	• Use of wood tools / Pillar Drill / Disk Sander • Use of laser printers (radiation, Fumes) • Ventilate area • Use of laser printers (radiation, Fumes) • Ventilate area • Sharps and abrasives	• Laser printers • PC's • 2D Design • General wood / plastic working tools • Laser Printer • Solvent / Glue • Soldering Iron

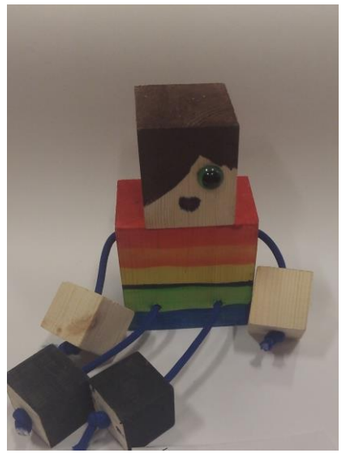
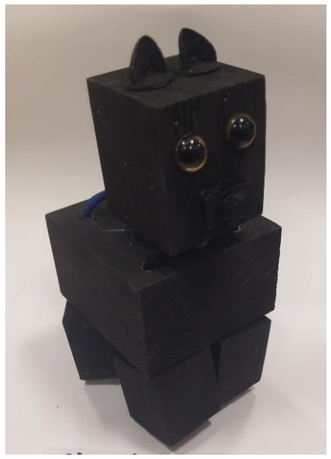
							• Glue / solvents • Heat Soldering Iron	
	7	• Evaluate product against original context and brief • End of Module assessment	Evaluation and Reflection	RL	• Using CAFÉ QUE revisit the specification for the scene product and reflect on your work to see if you have met the original needs and wants of the context audience. • Online its Learning test and assessments	• Completed evaluation and notes/comments on book work. • Its Learning	• It's Learning and appropriate templates.	• Computers and access to templates / resources.
	EXT 1	• 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	• Modelling and making of a product	• Finished model with group evaluation and discussion of workings	• Use of Craft Knives • Use appropriate equipment for task	• Craft Knives • Cutting Mats • Application Tape
	EXT 2	• Create an advertisement product that will work alongside product made	Developing marketing techniques	RL SM	• Design a small sticker of your choice: Band; funny; info	• Finished Graphics and Sticker printed	• CAD /CAM (Varies)	• CAD / CAM varies

Assessment

LEVELS	Design	Making	Evaluation
5 SOME	• Create some imaginative design ideas for the shape and the Graphical elements of the Block Man. • Sizes and shape identified in design work.	• Follow instructions carefully and safely using the Pillar Drill and Hand Tools correctly. • Accuracy shown in making and correct marking techniques adopted. • Overall quality of product is of a high standard with attention to detail.	• Evaluative comments used as the product develops making changes where necessary baring in mind the target audience and purpose. • Reflection of work identifying some areas to improve throughout design process keeping in mind the original design.
4 MOST	• Create design ideas for the shape and the Graphical elements of the Block Man that suit the target audience. • produce more than one idea for your project	• Follow instructions carefully and safely using the Pillar Drill and Hand Tools correctly. • Some Accuracy shown in making and marking of product. • Quality of work is of a good standard and generally well made.	• Varied evaluative comments made for final product. • Reflection of work identifying some areas to improve throughout work. • Make Changes where necessary.
3 ALL	• Create basic design ideas for the shape and the Graphical elements of the Block Man.	• Follow instructions carefully and safely using the Pillar Drill and Hand Tools. • Some Accuracy shown in making. • Quality of product is of an acceptable standard	• Some basic evaluative comments used for final product. • Reflection of work identifying some areas to improve.

ICT Skills	Skills & Knowledge	Technical Language
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. Other CAD including Adobe Illistrator and Photoshop to complete EXT task Use of Its Learning for resources etc	PRIOR: Some basic 2D Design Skills Some Context development of design proposals Basic Knowledge of manufacturing processes GAINED: Moderate skill base using CAD Knowledge of Materials, techniques and tools Work Safely Knowledge of Laser cutting, 3D printing and setting up of system Ability to compare and evaluate work based on reflection of comments etc.	Context Specification Manufacture Investigations Plastic recycling Evaluate Techniques CAD / CAM

Differentiation (All, Most & Some)	Health & Safety	PLTS Focus Areas
All should have a completed a product and used some basic CAD CAM **Most** should have completed a design and developed a context some use of CAD CAM **Some** will have developed a context developing a product of high quality that would be suitable for commercial purposes	Laser Cutting Fumes & Radiation Generally Health and safety (Hand Tools) Sharps and abrasives Pillar Drill (if drilling electronic access) Soldering Iron	**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.

Assessment Examples		
Level 3 (All)	Level 4 (Most)	Level 5 (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.

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.

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.

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.

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.

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.