



Content – Lamp Project

At the end of each module student complete a star diagram self assessment chart. At the beginning of each of their new module pupils set targets based on prior evaluation and teacher assessment feedback. Pupils will rotate around four D&T subject specialism modules in Y9.

Design/ Theory.

Big question: What do I need to know to be able to design and make a product from Wood based, Polymer based and Metal materials? **Learning outcome:** Students will be able to : collect research, analyse the task and research, Come up with two ideas for and develop the product they are going to make. Pupils will learn about making scale models and learn how to select, order and work with their chosen materials.

- **Health & Safety rules** – Pupils will become more independent in the workshop but they will need to be aware of a range of H&S rules and expectations.
- **Use of CAD** – Pupils will be taught more in depth CAD techniques (spaceclaim) and will try some rendering techniques to allow them to build this knowledge and skill in KS4.
- **Drawing in 3d and 2d**- A continuation of using 2D and 3D drawings to communicate their lamp designs will be undertaken.
- **Evaluation**- Pupils will be expected to evaluate their work all the way through designing and making so that development can take place.
- **Theory**- Life cycle analysis, Planned Design obsolescent, Non renewable and renewable energy, Work of James Dyson, Airbus and Bethan Gray, Surface treatments and finishes, Natural and Synthetic materials.

Practical/ Making skills.

Big question: How do I use tools and machinery in the workshop to mark out, shape, join and finish wood, plastic (polymer) and metal products.

Learning outcome: Pupils will make a card prototype of their desk lamp using their curved lamp stem. They will use 'Cutting lists' to plan out the sizes of the materials that they need. This will allow them to become proficient at measuring and understanding the range of materials that they can choose from. Making will be in the following broad sections:

- **Cutting** – Learn how to use a Band saw, coping saw and Tenon saw to cut materials and how to hold the work piece effectively in a bench vice. Also to become proficient at using CAD and Laser cutter.
- **Shaping** - Remember how to use a file, emery cloth, wet and dry paper and polish (brasso) to shape and smooth polymer.
- **Joining**- Learn about the various ways of joining materials- Adhesives (Tensol solvent glue, Multi purpose glue, PVA glue).
- **Finishing**- Learn how to finish wood, metal and polymer based materials.
- **Health and Safety**– using different Making techniques with quizzes, demonstrations and links

Evaluation/ Review.

Big question: How well did I perform within their practical making skills section?

Learning outcome: Students will be able to reflect back on the skills covered within the making and use this in order to help improve their skills for future projects.

- **Self Assessment** - What went well/what was easy? WHY?, What wasn't successful/what was difficult? WHY? What new skills have you learnt?, If you had the chance, what would you change and why?
- **Peer Assessment** – Create a multiple choice questionnaire to gather student opinions. Results can then be placed into a pie chart format.

Prior learning

Prior learning required

Y9 Product Design will build on key knowledge and skills learnt in Y7 and Y8 Resistant Materials and Product Design.

Global/IOM/Subject Links

Links to other subjects

- Materials families- Chemistry and Biology.
- Use of CAD (Design) and CAM (Manufacture) – ICT.
- 3d drawing- Art and Design.
- Linear measurement and angle measurement- Maths.
- Links to Business studies, Geography and Economics.

Links to Global picture

- Famous Designers/ companies knowledge.
- Being a good consumer (being able to select sustainable products). Knowledge of where local materials come from.



CARE Links

CARE Values

COURAGE	'I will challenge myself and be brave in my learning'
ASPIRATION	'I will strive to do my utmost, to achieve my goals'
RESPECT	'I will be polite to all and look after our school environment'
ENDEAVOUR	'I will aspire to complete my learning to the best of my ability'