



## Content - Big ideas

### Introductory unit

Pupils will undertake a Health and Safety worksheet at the beginning of the module rotations. *At the end of each module student complete a star diagram self assessment chart. At the beginning of each module their new module pupils set targets based on prior evaluation on teacher assessment feedback.*



**Design/ Theory.**  
**Big question:** What knowledge do I need to learn in order to get a grasp of Basic materials used in the workshop and how their properties allow them to be used to make products.

**Learning outcome:** Students will be able to copy working diagrams of the product they are going to make. Working from these diagrams they will be able to mark out Wood and Plastic components with some accuracy. They will be able to complete retrospective plans using diagrams detailing how they made their products.

- **Health & Safety rules** – Gaining an understanding hazards within the workshop and how to risks assess those factors in order to prevent them from happening.
- **Material families**– To learn how Woods, Plastics (polymers) and Metals can be arranged into two families ie- Softwood and Hardwood, Thermoforming and Thermosetting, and Ferrous and Non-Ferrous.
- **Use of CAD** – Learn how to drawn basic outlines on Techsoft 2D design (Computer aide design).
- **Drawing in 3d and 2d**- Develop the skill of presenting designs in 2d and 3d using oblique and Isometric projection.
- **Sequential Production planning** – Learn how to present a step by step plan of product manufacture.

### Practical/ Making skills.

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

**Learning outcome:** Students will be able to follow sequential demonstrations of practical work and carry to work out with appropriate accuracy using tools, machinery and the workshop environment safely.

- **Marking out**- Learn to measure in mm accurately and learn to use a try-square to make sure marking out is 'square'.
- **Drilling** – Learn how to accurately and safely use a Pillar drill to cut 'through' and blind holes.
- **Cutting** – Learn how to use a coping saw and Tenon saw to cut wood and how to hold the work piece effectively in a bench vice.
- **Shaping** - Learn how to use a file, emery cloth, wet and dry paper and polish (brasso) to shape and smooth polymer. Learn how to use a strip heater to bend thermoforming polymer.
  - Learn how to use Surform, Rasp and Abrasive paper (Glass paper reducing grades of coarseness) to shape and smooth wood based materials
- **Joining**- Learn how to insert countersunk wood screws and PVA glue to form non-permanent and permanent joints.
- **Finishing**- Learn how to finish wood based materials with water based varnish (3 coats with fine abrasive paper used between coats).

### 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

Completion of D&T transition days and Intake evening/days. Some D&T may have been taught in KS2 which is beneficial but not imperative.



### 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 Global picture

- Sustainable use of materials.
- Needs of a market.
- **Links to IOM**
- Being a good consumer ( being able to select sustainable products). Knowledge of where local materials come from.



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'