

Year 9 Product Design Overview

Unit	Duration (lessons)	Learning Objectives/Outcomes
Headphone wrap	15	<ul style="list-style-type: none"> • Develop core communication skills in a variety of drawing techniques and 2D / 3D Computer Aided design (CAD) • Create design criteria and select inspiration to develop realistic design proposals • Explore and experiment with ideas through the use of basic modelling techniques and CAD • Gain technical knowledge in order to make effective design choice in relation to material choice – card & paper, natural & manufactured timber and plastics. Understand where raw material comes from and how they are processed into standard forms & sizes. Analyse and appreciate why products change over time, in relation to innovation, materials, new technologies and manufacturing techniques • Develop practical and computer aided manufacturing skills to produce imaginative & functional prototypes
Pendant Box & Pewter Casting	12	<ul style="list-style-type: none"> • Investigate work of other famous designers to help inspire your design ideas. • Gain technical knowledge in working with natural & manufactured boards and be able to explain – where timber comes from, how it is processed, what standard sizes it comes in and the different forms that are available, how it can be joined or combined with other materials to create more functional products, and how it can be enhanced with surface finishes & treatments. • Gain technical knowledge in working with metals and be able to explain - where they come from, how they are classified and their material properties. • Create design briefs & design criteria using both primary & secondary data to inform the design of innovative, functional and appealing products. • Develop 3D modelling skills using CAD & by hand to help test, refine & improve ideas • Be able to mark out accurately and work to tolerances when making a variety of wood joints • Gain technical knowledge in casting techniques and scale of production • Create and manufacture moulds using CAD / CAM and explore how to create different textures & finishes with materials • Identify risks & learn how to manage health & safety using risk assessments & procedures.

		<ul style="list-style-type: none"> • Understand how different materials react to forces & stresses and how they can be enhanced to withstand these • Be able to explain the term ecological & social footprints and how designers have to consider the 6 R's when designing products.
Jewellery	10	<ul style="list-style-type: none"> • Gain technical knowledge in casting techniques and scale of production • Create and manufacture moulds using CAD / CAM • Explore how to create different textures & finishes with materials • Identify risks & learn how to manage health & safety using risk assessments & procedures
Mechanical Devices	7	<ul style="list-style-type: none"> • Be able to explain what a mechanism is and the four main types of movements which designers can use to create products • Be able to identify different types of linkages & levers in everyday products • Understand how rotary systems such as cams work • Be able to use numeracy & accurate marking out to create working models to show how different movements can be made.