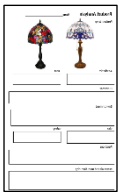
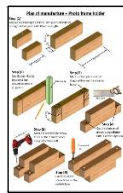


# Year 8 D&T Engineering & Product Design

## Image Frame

## Image Frame Lesson Content



**Designing:** Students will investigate user needs & target groups, focusing on market research strategies to generate ideas for an image frame to meet a particular market group / user. Design ideas will be generated & presented using a range of formats including modelling, computer aided design (CAD) and annotated hand sketches. Students will also develop design skills through specific product design challenges.

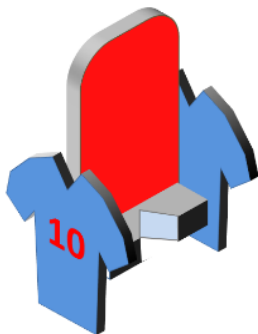
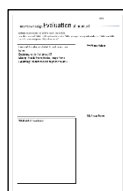
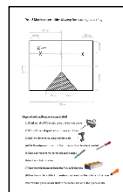
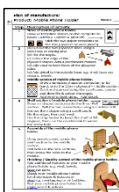
**Making:** Students will use a range of techniques, processes & equipment to shape, form & assemble a timber frame using halving joints, followed by the manufacture of aluminium feet. Jigs will be used to bend the feet into shape, and provide an understanding of mass production techniques. Students will use tools and machines such as pillar drills, cordless drills, Tenon saws, screwdrivers, countersinks, bradawls, files, hammers, and marking-out equipment. Students will also use laser cutting & computer numerically controlled (CNC) vinyl cutters to add features to their product.

**Evaluate:** Students will study the work of past and present professionals. They will analyse & test their own and others' products, and test their ideas against user needs. Students will consider improvements, quality control, and environmental issues of using certain materials. Students will also analyse existing products to develop a greater understanding of product analysis.

**Technical Knowledge:** Students will develop knowledge of material properties and sustainability issues. They will develop knowledge of electronics and understand how electrical and electronic systems can be powered and used in their products. Students will also complete a specific task to develop their knowledge of control technology and how to apply computing and use electronics to embed intelligence in products.

## Mobile Phone Holder

## Mobile Phone Holder Lesson Content



**Designing:** Students develop further understanding of marketing & using market research to identify user needs and to develop specifications to inform the generating of designs. Students will produce 2D designs (orthographic) & 3D designs (isometric), which are generated & presented using a range of formats, including computer aided design (CAD). This project will also include specific design challenges.

**Making:** Students will use a range of techniques, processes & equipment to mark out, shape & form timbers (plywood), in addition to using PVC for the phone shelf. Students will use & develop their understanding from prior learning of common fabrication techniques associated with timbers & plastics to select & use more complex materials to add features to their designs. This will include using the laser cutter to generate design features. Student will also develop more advanced knowledge of using machines such as belt sanders, pillar drills, scroll saws, strip heaters and a range of common had tools.

**Evaluate:** Students will analyse their own and others' work with a view to improving their products, and considering market users. Students will evaluate their phone holders against the specification and suggest possible improvements.

**Technical Knowledge:** Students will develop knowledge of material properties and sustainability issues, and how products could be improved to make them less harmful to the planet. In this project, students will also complete a specific task to develop their knowledge of mechanisms and how more advanced mechanical systems are used in products enable changes in movement and force.