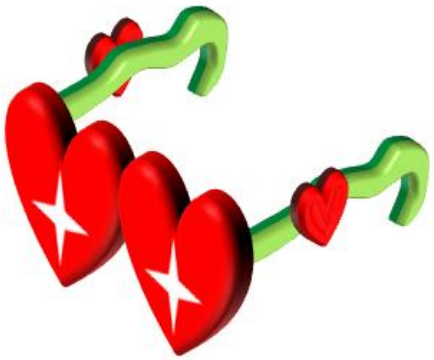
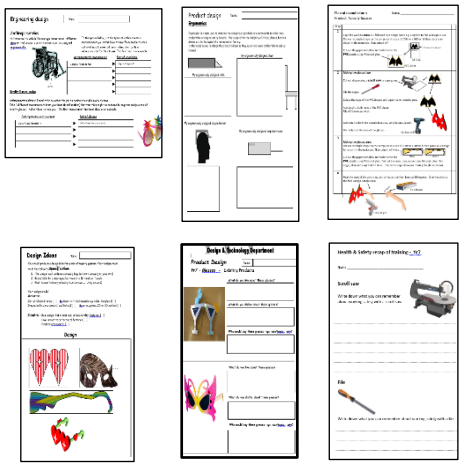
Year 7 D&T Engineering Design

Novelty Glasses





Novelty Glasses Module Content

Designing: Students will develop an understanding of user needs **(Ergonomics & Anthropometrics)** & target groups, and ***use design briefs*** to generate ideas to meet these needs. 2D & 3D designs are generated using different design approaches such as ***user centred***, ***biomimicry***, and presented using a range of formats including modelling, computer aided design (CAD), and annotated sketches. Students will also focus on the area of product design through individual tasks by designing everyday products such as kettles, irons, hairdryers etc. to build skills in problem solving, and to develop creative and innovative thinking.

Making: Students will use a range of techniques, processes & equipment to shape & form **Plastics** (mainly PVC & vinyl). Students will receive instruction in the use of hand tools & machinery / equipment, including the use of laser cutters to provide additional features on their designs. Students will learn how to work safely in a practical context, and develop knowledge of fundamental health & safety procedures when using tools and equipment.
Students will be encouraged to ***solve problems*** and develop their ***initiative*** within a practical context, and to develop practical competence and intelligence, as well as confidence using new equipment and the ability to work as part of a team.

Evaluate: Students will study the work of past and present professionals and be introduced to new technologies. Students will analyse their own and others' products with a view to improving performance and considering environmental issues & the impacts and responsibilities of designs on society.

Technical Knowledge: Students will develop knowledge of material properties and sustainability issues. Students will develop technical understanding of computer aided design through the use of laser cutters and computer controlled (CNC) vinyl cutters, as well as technical understanding of machine and tools use.

Stationary holder

Instruction Board – Stationary Holder

Stationary Holder Module Content

Designing: Students develop an understanding of user needs & assessing research findings to generate ideas in response to a design brief and specification. Student will then develop design ideas for a stationary holder in 2D formats (orthographic) & 3D formats (isometric), and presented using a range of rendering techniques. Students will also use computer aided design to develop and enhance ideas.

Making: Students use a range of techniques, processes & equipment to mark out, shape & form a timber block to hold pencils. Students will receive basic instruction in the use of machines such as pillar drills & belt sanders, and these are used safely. Students will then use Styrofoam to cut and shape a mould using scroll saws (building on knowledge from project one) for making the base of their stationary holders. They will then vacuum form their moulds using HIPs to create a ridged plastic base, and then add features to the design using vinyl and other materials. Students will be encouraged to work independently and follow plans of making and instruction boards (see left), and solve their own problems in order to create a successful product.

Evaluate: Students will analyse and test their own and others' products with a view to improving their own design and performance while considering markets for their products. Students will evaluate the environmental issues of their product and ways in which it can be made more sustainable.

Technical Knowledge: Students will develop knowledge of material properties, including sustainability issues. Students will develop technical understanding of tool and machine use, and how materials can be formed and reformed using heat. Students will develop technical knowledge of power machinery use and the limitations and uses of each machine, including how to work safely.