Subject: Design

Year: 8

William Hulme's Grammar School
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Overview	In Year 8, students build on their knowledge gained from the previous year to design, make, analyse and evaluate products. Through a range of projects, students use their design, practical and problem-solving skills to design and make solutions to the different design briefs. We introduce a range of new skills and relate all our learning to industry. Projects covered over the duration of the year are not necessarily in this order. Each project lasts for 12-14 lessons.

Autumn Term	**Creative Project – Trainers for the Future** ■ The Design Process – What the steps are and what they cover (Design brief, research, specification, design ideas, prototyping, evaluation) ■ Product Analysis – How to analyse using the ACCESSFM acronym (Aesthetics, cost, customer, environment, safety, size, function, and materials) (extended writing task) ■ Idea Generation – Shown how to sketch and present design ideas using pencils, fine liners, and pencil crayons ■ Biomimicry technique – using nature to help inspire creative and unique design ideas. ■ Morphology technique – using product characteristics to help inspire creative and unique design ideas. ■ Client Profiles – Using peoples' needs and wants to help design help inspire creative and unique design ideas for different target markets. ■ Developing Drawing, rendering, shading and fine-lining techniques. ■ Materials Science (Plastics and Processes) Understanding thermoset, thermoplastics and elastomers, their characteristics, properties, stock forms and how to work with them. Focus on Vacuum forming.	**Assessment** **Design skills** ■ Presentation and colour ■ Creativeness of Design ■ Complexity of design ■ Drawing technique ■ Annotation **Extended writing** ■ Analysing and evaluating ■ Vocabulary ■ Spelling and Grammar

Spring Term	**Practical Project – Desk Clock** ■ Idea Generation – using the techniques learning in the previous term (Biomimicry, morphology, and client profiles to create a unique toothbrush holder design) ■ Working with Tools and Machinery (Learning how to use hand tools and workshop machinery) ■ Health and safety (Learning the H&S Rules and safety precautions and PPE to work safely in the workshop) ■ Materials (Plastics HIPs) thermoplastic for vacuum forming ■ Mould making – plywood base shaped, details with air drying clay. ■ Vacuum forming – steps involved, and parts named. ■ Learning the order in which the clock will be made. Marking out – Sawing – Filing – Sanding – Drilling – Assembly - Finishing	**Assessment** **Practical skills** ■ Quality of making ■ Accuracy of Design ■ Working safely and Independently ■ Time management

Summer Term	Computer Aided Design Project – TinkerCAD Product	Assessment
	■ How CAD & CAM is used in Industry on a larger scale for batch/mass production. ■ Work planes- drawing on different levels and adding/removing shapes ■ Shape manipulation – editing size, colour, and fillets. ■ Extruding shapes and text ■ Mirroring - duplicating a shape with mirroring function ■ Aligning – Aligning shapes vertically and horizontally ■ Arraying – duplicating shapes in a grid or circular layout. ■ Removing shapes – removing shapes to create a hole or negative space ■ Dimensioning – adding correct dimensions to have accurate proportions. ■ Changing colours – editing shapes/design to create a more realistic look.	**Design skills** ■ Creativeness of Design ■ Complexity of design ■ Range of skills used

Useful Resources for Supporting Your Child at Home:	Homework:
Teams – all teaching resources can be found here. Tinkercad.com – To access the CAD program and practise. Technology student.com – All things Design How it's made on YouTube – understanding manufacturing processes.	Students are expected to come prepared to design lessons with the correct drawing and writing equipment. Homework is always recorded on Teams. Homework vary from research, written or design tasks that require no more than 30 minutes to complete.