Northallerton School & Sixth Form College
Being the best we can be

Year 8 Design and Technology

During KS3 design technology students experience a range of 'design & make' activities via a carousel, using both resistant materials: wood, metal and plastic and also compliant materials such as food, textiles and card. All technology projects involve analysing problems and producing design solutions. These could be either models or real products. Students use computers, graphic and CAD/CAM software to enhance their design work and manufacture high quality products. Students will complete two projects per rotation as shown below.

Methods of deepening and securing knowledge:	
Retrieval practice	Theory and practical sessions are used as opportunities to revisit prior learning. Before students embark on any new project, they are reminded of the links to the key theory covered in the course. Students will frequently revisit theory and skills they have used in previous tasks, building knowledge through questioning and further application of tasks.The practical work itself allows students to apply their prior learning in real-life contexts, which helps to secure students' understanding.
Elaboration	Through exciting new projects students are able to elaborate on new making methods and techniques to extend skills further.
Concrete examples	Demonstrations are used to consolidate understanding of processes and techniques.
Knowledge organisers	Knowledge organisers are used to inform students of the skills and techniques used throughout the project and develop research skills needed in the tasks.

	Theme 1	Theme 2
Topic(s)	**Mini Speaker** Students will design and make a Mini Speaker using a number of different manufacturing techniques. Students will also look at new types of electronic components/symbols and how they can be used to form a circuit diagram. Students will use soldering techniques to attach electronic components to a PCB (Printed Circuit Board). Students will also analyse a range of famous artists which will be used to create the graphics for the speaker housing.	**Textiles bag for life** Students will design and make using a combination of new and upcycled material a fabric bag for life. Students will be looking into sustainability of fabrics and the effect on the wider world of mass textiles production. Students will learn a variety of techniques for construction and surface decoration. Students will take inspiration for artistic movements, famous artists or fashion designers.

	• The work of others (artists and designers) • Electric/ electronic components • Electronic systems • Quality control • Electronic systems • Application of methods of quality control • Well-known artists • Design Briefs • Specifications • Evaluations	• The work of others (artists and designers) • Research and information presentation • Fabric construction and fibre origins • Application of methods of quality control • Well-known artists • Design Briefs • Specifications • Evaluations
Assessment	Assessed against relevant elements in the individual student tracking sheets: research, designing, making and evaluation across B to P criteria. Allows for some overlap to allow progression. Includes end of year assessment task.	Assessed against relevant elements in the individual student tracking sheets: research, designing, making and evaluation across B to P criteria. Allows for some overlap to allow progression. Includes end of year assessment task.
CEIAG *(Careers that are linked to that topic)*	QC checks and production lines within industry.	Recycling industry and opportunities here.
Topic	**Calendar** Students will design and make a Calendar using a number of different designing and manufacturing techniques.Students will also analyse a range of calendars already on the market and use this research to inform their design.Students will develop an appropriate layout and use computer design programs such as Publisher and Photoshop to create their final design. • Paper and card materials and their sources and origins • Paper and card sizes, stock forms and forms of supply Application of themes • Finishing techniques/binding processes • Research and investigation techniques • Laminating processes • Product Analysis • Specification • Design Problem and Brief	

Assessment	Assessed against relevant elements in the individual student tracking sheets: research, designing, making and evaluation across B to P criteria. Allows for some overlap to allow progression. Includes end of year assessment task.	
CEIAG *(Careers that are linked to that topic)*	Jobs in Graphic Design.	

	Theme 3	Theme 4
Topic(s)	**Food Choice**. Students will build on skills and knowledge developed in year 7 and explore how availability, health, lifestyle, moral, ethical and religion affect our choice of food and diet. They will further develop their repertoire of basic practical skills so they can look after themselves and their families in later life. They will then apply the new skills and knowledge to Design and make a savoury dish for a client that celebrates an identified cuisine of their choice. ● 4 Cs and application to practical sessions ● Nutrient sources and functions and links to eatwell plate. ● Special diets – Medical ● Special diets – Religious and ethical ● Food science – reduction, gelatinisation, oxidation. ● Provenance – seasonal and local foods/food miles. ● Staple foods	**CNC Sweet Dispenser** Students will design and make a Sweet Dispenser using a number of CNC/CAD/CAM making techniques. Students will again look at types of polymer and how they can be manufactured. They will then use all the separate components they have manufactured to construct/assemble their product. ● Standard fixings ● Different standard drilling tools ● Sawing/ material removal tools and equipment ● Plastics revision ● Using jigs/ templates ● Using CAD/ CAM/ CNC ● Virtual modelling ● Sanding and Smoothing techniques ● Cutting and shaping materials ● Surface finishing techniques ● Countersinking/ counterboring ● Joining material- Adhesives

Assessment	Assessed against relevant elements in the individual student tracking sheets - designing, making, evaluation, technical knowledge and cooking and nutrition across B to P criteria. Allows for some overlap to allow progression. Includes end of year assessment task.	Assessed against relevant elements in the individual student tracking sheets: research, designing, making and evaluation across B to P criteria. Allows for some overlap to allow progression. Includes end of year assessment task.
CEIAG *(Careers that are linked to that topic)*	Jobs in the catering, nutrition, manufacturing and the food science industry.	Entrepreneurs and business.
Topic(s)		**Garden Tool** Students will make a Garden Tool using a number of traditional engineering making techniques. Students will also look at how to measure and mark out on metal, cutting metal, riveting, folding and finishing metal. ● Sources and origins of metal materials ● Properties of metals and alloys ● Sources and origins/properties of manufactured boards ● Surface finishing processes ● Using marking and measuring equipment ● Cutting/ material removal tools and equipment ● Joining materials Temporary- screws, bolts ● Joining materials permanent- Welding, brazing, riveting ● Application of surface finishes ● Drilling processes ● Blanking (Punching) and stamping
Assessment	Assessed against relevant elements in the individual student tracking sheets: designing, making, evaluation, technical knowledge and cooking and nutrition across B to P criteria. Allows for some overlap to allow progression. Includes end of unit assessment task.	Assessed against relevant elements in the individual student tracking sheets: research, designing, making and evaluation across B to P criteria. Allows for some overlap to allow progression. Includes end of year assessment task
CEIAG *(Careers that are linked to that topic)*	Environmental Health, Quality control food industry, Nutritionalist, Dietician	Reading engineering drawings and marking out accurately on metal.

Independent Study

Students in Year 8 have access to the course materials through Google Classroom. Independent study is accessible through this platform and is given either each week or once a fortnight. Independent study is generally used to secure prior learning through practice to develop confidence and memory.