

Design and Technology

KS2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

Year 7

- Key Tag Project – Working with key workshop tools to shape acrylic accurately and safely
- Picture Frame Project – Team working to understand industrial production techniques
- Presentation Techniques – Building graphical design skills through a range of techniques
- Desk Tidy Project - Developing a range of wood working skills

Year 8

- Colour Changing Light Design – Develop understanding of assembling and finishing wood products and the iterative design process.
- Colour Changing Light Electronics - Develop understanding of basic electronics and soldering skills
- Presentation Techniques - Build on the techniques acquired in Y7 to help communicate design ideas
- Clock Design Project – Use a range of resistant materials in a creative way to produce a product
- MicroBit Control - Use of programmable electronic components to control a range of physical applications

Year 9

- Automata design and make – How can mechanisms be used to create a range of motion or transfer force in useful ways. Further development of wood working skills.
- Pewter Casting Project - Shaping metals through the process of casting. How can we be creative in our design thinking?
- Modelling Project – Using low-cost materials to develop design thinking
- Problem Solving Challenge – A team building competition applying the skills and processes acquired so far to design and make a solution to a given problem.

Year 10

Product Design

- Multi material lamp project – Design and build a creative desk lamp with a concrete base using a range of materials.
- Box of Joints Project – Use of a range of tools to shape wood and experiment with a range of wood joining techniques. Creativity with wood veneers.
- CAD Skills – Using computer modelling to assist with the design process
- Start NEA – Exam board release design context in June. Investigation of suitable projects linked to the context and interview of client and research. Complete section A and B

Design Engineering

- Electronic Timer Project – Build on basic electronic skills to model and test electronic design ideas. Design and make a product for a timing application
- Metal Working Project – Various tools and processes used when working metal
- CAD Skills – Using computer modelling to assist with the design process

- Start NEA – Exam board release design context in June. Investigation of suitable projects linked to the context and interview of client and research.

Year 11

Product Design and Design Engineering

- Completion of Controlled Assessment NEA – Major project worth 50% of the GCSE. Design, make and evaluate
- Review of theory content – Review of core theory content, specialist technical principles and design principles.

Year 12

Product Design

- Metal working Project – How can you include creativity when designing with metal? Casting Aluminium.
- Design Project – How can you improve the look and feel of a product to make it marketable?
- Material Properties – Looking at various material properties and how these might be tested
- Design Communication including CAD – Developing skills in a range of graphical communication techniques including computer-based tools.
- Start NEA – Students will find a suitable client and investigate needs/problems to solve.

Design engineering

- Electronics and pneumatic Control - Using programmable electronics in products and systems. Complete an electronics system project. Gain understanding of Pneumatic systems.
- Metal Working Project – Working with sheet metal and processes to make a tool box. Casting Aluminium.
- Structures and Forces – Focused practical task looking at how structures are created
- Material Properties – Looking at various material properties and how these might be tested
- Design Communication including CAD – Developing skills in a range of graphical communication techniques including computer-based tools.
- Start NEA – Students will find a suitable client and investigate needs/problems to solve.

Year 13

Product Design

- Completion of Controlled Assessment NEA – Major project worth 50% of the GCSE. Design, make and evaluate
- Review of theory content – Preparation for technical papers through revisiting material and exam style practice questions.

Preparing for the future:

Parentships

- Carpentry and Construction

Degree Courses

- Product Design, Industrial Design, Electrical Engineering, Robotics, Mechanical Engineering, Automotive Engineering, Aeronautical Engineering, Manufacturing, Marine Engineering, Architecture.