

Technology Year 9 Curriculum:

Department Intent: To provide pupils with a broad, balanced and engaging experience of all of the specialist areas that make up Design and Technology.

Assessment areas: There are 4 main areas of design and technology that will be covered and assessed in year 7: **Designing:** - Using research to identify user's needs. **Making:** - Using specialist equipment and a range of materials. **Evaluate:** - Test, evaluate and refine ideas taking into account the views of others. **Technical knowledge:** - Understand and use the properties of materials. Understand more advanced electrical and electronic systems. Understand mechanical systems. The year 7 curriculum will be delivered in a rotation, where all students will study the projects listed below at some point in the year.

Project 1 – Computer Science (Advanced Programming and the Theory of Computing)

- Advanced programming in python
- How computers work
- Communication and networking

Key Objectives for Project 1 (Computer Science) – to be able to:

- Understand and apply definite and indefinite iteration.
- Apply concepts of Modular Programming.
- Comprehend and apply complex abstract data structures.
- Describe the inner workings of a computer system.
- Differentiate between types of software.
- Describe various methods and designs of communication systems.

Project 2 – Resistant materials (Light in a box)

- Analyse a design brief.
- Analyse existing products.
- Produce a range of creative ideas.
- Use a range of materials effectively to produce a finger jointed box and front plate.
- Use a range of tools and equipment safely.

Key Objectives for Project 2 (Light in a box) – to be able to:

- Analyse a design brief and write a detailed specification for the light in a box.
- Create a range of unique ideas based on the existing product research.
- Identify a number of electronic components and solder the lighting circuit correctly.
- Use a range of tools and processes efficiently and safely without help.
- Evaluate the finished product against the original specification.

Project 3 – Food

- Use equipment safely and hygienically.
- Be able to understand how products rise using chemical and biological raising agents.
- Understand why foods are cooked and what the chemical changes are and why they happen.
- Be able to combine foods to show a good balance of nutrients, colour and texture.
- Understand where food comes from and what primary and secondary processes are..
- Be able to make a bread product.
- Produce a well presented and detailed book.
- Produce well planned and evaluated work.

Key Objectives for Project 3 (Food) – to be able to:

- To investigate the different types of ingredients and what they are used for.
- To understand the structure and nutritional values of selected ingredients.
- Demonstrate a range of practical skills using a wide range of different culinary equipment safely.
- To be able to evaluate a range of practical dishes.

Project 4 –Product Design (Keyring and holder)

- Understand the needs of a client/target market.
- Consider UMMFA (user, materials, manufacture, function, aesthetics) when creating designs.
- Produce a range of creative ideas inspired by a chosen theme
- Making of high quality keyring and holder
- Use a range of tools and equipment safely.
- Have an awareness of the die casting process

Key Objectives for Project 4 (Keyring and holder) – to be able to:

- Research into a chosen design theme and present along with product analysis.
- Create a range of ideas inspired by research.
- Analyse and develop ideas by considering UMMFA.
- Use a range of tools and processes efficiently and safely without help.
- Evaluate the finished product against the original specification.

Key Performance Standards

Knowledge:

Computer Science:

- Understand how computers work.

Resistant materials

- Understand a more complex range of manufacturing processes
- Have an improved understanding of a range of woods, manufactured boards and metals, taking into account their properties.

Food:

- Understand the importance of food choice and where food comes from.
- Understand what a raising agent is and which raising agent is best for each product.

Product Design:

- Understand how the needs of a client can be used when producing a range of ideas.

Skills:

Designing:

- Research and analyse similar commercial products with comments reflecting user's needs.
- Respond creatively to the design brief.

Making:

- Be able to manufacture using CAD/CAM and following a manufacturing plan.
- Be able to use a range of equipment safely whilst showing a range of practical skills to create healthy dishes.

Evaluating:

- Evaluate products using the thoughts of others in order to improve a design.
- Be able to test and evaluate products, comment on current and future technologies and the ethics of products.