# Curriculum Overview

## Curriculum Area: Design Technology Year: 7

**Year 7 Curriculum: Timbers**

All pupils will learn how to design, create, make, and evaluate a block bot and a tolerance box showcasing their ability to work with hand tools to produce accurate work

Pupils will learn workshop safety, how to conduct themselves safely in a workshop environment by wearing the correct PPE and following safety signs and markings

Pupils will learn how use a range of hand tools including a belt sander, handheld drill, vice, hold, files, and rasps.

They will learn about the source origins of timber and the hard wood and soft wood categories and the main differences between coniferous and deciduous trees. They will learn about working properties of timber and the impact their processes for manufacture have on the environment.

Pupils will learn how to isometrically draw out their ideas using construction lines, 30-degree angles, and shading.

Pupils will learn and apply the skills needed to mark out accurately and check their work using a 'no go' gauge and the importance of accurate work regarding manufacture.

**Links to the KS3 National Curriculum**

**Design:** Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations, and computer-based tools.

**Make: S**elect from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture. **S**elect from and use a wider, more complex range of materials, components, and ingredients, considering their properties.

**Evaluate:** Test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups.

**Technical knowledge:** Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.

**Assessment Opportunities**

Core knowledge of this unit will be regularly tested and revisited during this unit with a knowledge quiz completed at the end.

Critical and summative evaluation of own product designed and made.

Formative assessments of product design and completion throughout the unit.

A photo of the finished product should also be included.

**Cultural Capital**

Sustainability, understanding the impact of material usage and its impact on the environment - local and global discussion. Where do different timbers come from and how are they sustainable sourced and manufactured into products.

**Year 7 Curriculum: Polymers**

All pupils will learn how to design, create, make, and evaluate a board game with laser cut game counters and a programmable 3D printed dice. Pupils will learn how to use the techniques summarized with the acronym 'ACCESS FM' (Aesthetics, Customer, Cost, Environmental, Size, Safety, Function, Material) to build a comprehensive analysis on existing products. Pupils learn to design a logo and practise their 2D and 3D drawing skills.

Pupils will learn how to design using a computer through software such as Techsoft 2D Design, Google Sketch up and Tinker cad. This knowledge will be sued to enable pupils to design CAD images to send work the laser cutter and 3D printer in the correct format. It will also refine, extend, and build up their repertoire of computer designing skills.

Pupils will learn about programming software and how to virtually wire an electrical circuit to make an LED playable dice.

**Links to the KS3 National Curriculum**

**Design: I**dentify and solve their own design problems and understand how to reformulate problems given to them. **D**evelop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.

**Make:** Select from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture.

**Evaluate:** Test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups.

**Technical knowledge:** Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

**Assessment Opportunities**

Core knowledge of this unit will be regularly tested and revisited during this unit with a knowledge quiz completed at the end.

Critical and summative evaluation of own product designed and made.

Formative assessments of product design and completion throughout the unit.

A photo of the finished product should also be included.

**Cultural Capital**

Enabling pupils to interact with a modern design world using computer aided design packages and computer manufacture such as 3D printing. Pupils can work at the for front of new and emerging technology to explore possibilities when creating their products.