

## Rugby Free Secondary School Product Design Curriculum Sequence Overview 2024-25

### **Key Stage 2 Key Links:**

The National Curriculum for Design and Technology states that students should be taught to:

1. Design, Make and Evaluate products
2. How to strengthen, stiffen and reinforce more complex structures
3. Understand and use electrical systems in their products

### **Year 7 Link to Key Stage 2:**

1. Designing products according to a design brief.
2. Making products using complex structures and strengthening.
3. Evaluating the quality of finished products.

### **Year 8 Link to Year 7:**

1. Using a wider range of tools and equipment to develop manufacturing skills.
2. Develop design skills using CAD design to communicate ideas.
3. Select materials in order to improve the quality of products.

### **Year 9 Link to Year 8:**

1. Use a wider range of materials to produce more complex, higher quality, products.
2. Develop CAD and CAM skills to design and make products which are high quality.
3. Construct and test an electrical circuit which includes a range of components.

### **Year 10 Link to Year 9:**

1. Pupils learn to identify and solve their own design problems and understand how to reformulate problems given to them.
2. Pupils learn to select from and use a wider, more complex range of materials, components taking into account their properties.
3. Pupils will learn about new and emerging technologies that have replaced the tools they have learnt previously.

### **Year 11 Link to Year 10:**

1. Students complete their NEA task (50% of final grade). The NEA is a substantial design & make task assessing areas such as research and investigation, communicating design ideas and realising design possibilities.
2. Students complete the written examination (50% of grade), which is split in to 3 areas: A – Core technical principles (20marks, B – Specialist technical principles (30 marks) and C – Design & making principles (50 marks)

### **Year 12 Link to Year 11:**

1. Pupils learn to provide detailed and justified explanations of why specific materials and combinations of materials are suitable for given applications, with reference to physical and working properties.
2. Students learn to develop an awareness of the relationship between material cost, form, and manufacturing processes, and the scale of production.
3. Students learn to be aware of how computer systems are used to plan and control manufacturing, reduce waste and respond quickly to changes in consumer demand.

### **Year 13 Link to Year 12:**

1. Students complete their NEA task (50% of final grade). The NEA is a substantial design & make task assessing areas such as research and investigation, communicating design ideas and realising design possibilities.
2. Students complete the written examination (30% of grade), which covers technical principles in a mix of short and extended response questions
3. Students complete the written examination (20% of grade), which covers the designing and making principles in a mix of