

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
5	<p><b>Introduction</b> examples, rules and regulations. Front cover design.</p> <p><b>Graphics</b> skills focus – pencils, gradient rendering, use of colour</p> <p><b>Mechanisms</b> intro</p>	<p><b>Mechanism</b> models (cont) – Card/board. <b>Theory input</b> - Lever, gear, linkages and pulley mechanisms.</p> <p>Moving lever design – ideas, CAD and card/split pin construction.</p>	<p><b>Electronics</b> modelling series and parallel warning circuit, pressure pad sensor. <b>Theory input</b> Types of circuit, voltage and current, components and construction/tools used.</p>	<p><b>Electronics</b> (cont) presenting findings and completing theory</p> <p><b>6 R's</b> - Introduction to sustainability, examples and reasoning. Research project – IT based</p>	<p><b>Tools and Machines</b> – an introduction to uses and safe practice.</p> <p><b>Theory input</b> – Tool and machine equivalent, correct materials, H&amp;S rules etc</p>	<p><b>Tools and Machines</b> (cont) – series of small toll and machine focussed exercises with wood/plastic focus</p> <p><b>Testing knowledge</b></p>
6	<p><b>Introduction</b> examples, rules and regulations. Front cover design</p> <p><b>Graphics</b> skills focus – pencils, gradient rendering, use of colour</p> <p><b>Tools/machines</b> intro and rules/safety</p> <p><b>Laminate keyring</b> intro</p>	<p><b>Laminate Keyring</b>– Acrylic focus, first machine use – rules and safety input.</p> <p><b>Theory input</b> – plastics from source, manufacturing and disposal.</p>	<p><b>Structures project</b> Research into buildings and structures – pairs presentation. Structures pair building exercise.</p> <p><b>Theory input</b> - Structures and architecture design, forces, compression and tension, rigid, flexible</p>	<p><b>Structures</b> (cont) Final presentation of pairs to group. Final competition for bridge weight baring.</p> <p><b>Planning and Flow charts</b> – short exercises on planning an activity</p>	<p><b>Wood focus</b> – tool and machine uses. Short manufacturing exercise.</p> <p><b>Theory input</b> – tool and machine test – types and uses.</p>	<p><b>Wood</b> (cont) presenting findings and completing theory</p> <p><b>Testing knowledge</b></p>
7	<p><b>Introduction</b> examples, rules and regulations. Front cover design.</p> <p><b>Graphics</b> skills focus – pencils, gradient rendering, use of colour</p> <p><b>Memphis Clock</b> – intro Wood/plastics with Memphis styling.</p>	<p><b>Memphis Clock</b> (cont) Wood/plastics with Memphis styling.</p> <p><b>Theory input</b> – plastics types and uses, examples and manufacturing methods.</p>	<p><b>Phone Holder</b> – Modelling focus with Mackintosh styling. Isometric drawing - pencil/CAD. Sketch up extension</p> <p><b>Theory input</b> - Charles Rennie Mackintosh designs, Design Criteria</p>	<p><b>Phone Holder</b> (cont) Final construction and evaluation (self/peer).</p> <p><b>Extension – Design Classics</b> study and presentation of favourite designs.</p>	<p><b>Metals input</b>– an introduction to metals and short practical exercise.</p> <p><b>Theory input</b> – sources, types, manufacturing, uses, exemplars</p>	<p><b>Metals</b> (cont) presenting findings and completing theory</p> <p><b>Testing knowledge</b></p>
8	<p><b>Introduction</b>/examples/rules and regulations. Front cover design.</p> <p><b>Graphics</b> skills focus – pencils, gradient rendering, use of colour</p> <p><b>Nodding Dog</b> – intro</p>	<p><b>Nodding Dog</b> – wood construction, following dimensions/instructions.</p> <p>Sketch up extension</p> <p><b>Theory input</b> – natural and manufactured wood.</p>	<p><b>Sweet Treat Packaging</b> – Card focus. Research into packaging graphics. Design ideas and model. CAD final – orthographic, CAD etc 'My Perfect Room' Sketchup focus</p> <p><b>Theory input</b> – packaging design.</p>	<p><b>Sweet Treat</b> (cont) Final construction and evaluation (self/peer)</p> <p><b>Extension</b> – Point of sales Display (POSD) design and construction.</p>	<p><b>Swan Box</b> – Storage research and design for keepsake soft/hardwood box. Hardwood/joining focus. Orthographic CAD.</p> <p><b>Theory input</b> – wood in greater depth - uses, manufacturing, etc</p>	<p><b>Swan Box</b> (cont) final construction and finishing surfaces. Final evaluations.</p> <p><b>Preparation for GCSE</b> Exemplar and exam topics</p>

## DESIGN and TECHNOLOGY

## End Points: Aims and knowledge in Evidence (per year/per Key Stage)

### Key Stage 2

**Year 5** – Students are introduced to the subject with exemplars from a wide range of school and professional projects through various media. **Presentation skills** and confidence building begins with becoming organised and having a sense of pride in their work. A personal folder for research, design and evaluation is started and **hand drawing, colour rendering** and **CAD** graphics experienced. A **mechanisms** project based on levers uses sketch ideas and CAD to produce a working card model. **Electronics** is studied with paired exercises building parallel and series alarm circuits using self-assembly kits. A short exercise on **sustainability** follows. The final term is a series of exercises to ready the students for using **hand tools** and **machines** in Yr6. This is about confidence building and safe practice involving materials based shaping, cutting, drilling and finishing. Testing takes place at the end of the year.

Skills and theory set: presentation/drawing/CAD, mechanisms, electronics, sustainability, hand tools and machine use, safety - confidence.

**Year 6** – Following a recap of presentation and folder layout the students begin their first **tool/machine** based exercise designing and manufacturing an acrylic key ring from sketches and CAD modelling. A **structures** project follows with paired exercises on a powerpoint presentation to the whole group on famous buildings and card/straw based construction exercises and a competition based on bridge building. A short exercise of **flow charts** and planning follows. A wood focus project will be their first major **design and make** exercise following a brief, research, designing, developing, modelling, planning, construction and testing/evaluation. Testing takes place at the end of the year.

Skills and theory set: Plastics/machining, structures/modelling, planning and flow charts, wood/machining, design process – procedure.

### Key Stage 3

**Year 7** – Following a recap of presentation and folder layout the students begin a **designer** research project (**Memphis Group**) leading to a **multi-media (wood/plastic)** clock design, **model and manufacture** exercise against a tight deadline. **CAD orthographic** and **3D modelling** introduced. Plastics theory is the focus. This leads to a second designer influenced product – a **Mackintosh** themed phone holder – **Manufactured wood** is the theory focus. A final term **metals** focus (source, manufacture, uses, disposal, sustainability) project completes the three major material areas across the year. Testing takes place at the end of the year.

Skills and theory set: Wood, metal, plastic theory and practical uses, machine and tool confidence (con't), planning and deadlines – practicalities.

**Year 8** – Following a recap of presentation and folder layout the students begin a pre-designed **batch production** exercise (note taking unit) using accuracy, measurement and repeat processes. A **graphics packaging** exercise explores typography, branding, logos, layout, colour and materials resulting in a confectionary box design. The final Swan Box is a previous Yr 9 KS4 hardwood keepsake box project. Four **wood joins** make up the corners and the emphasis is on a shop **quality finish**. The final exercise draws all strands together in preparation for possible GCSE level in the transition to their next school. Testing takes place at the end of the year.

Skills and theory set:- Scales of production, quality control/assurance, packaging, graphic design, joining wood, finishes - professionalism

## **Curriculum Intent statement:-**

The experiences gained in the DT department will provide students with a significant range of skills and knowledge that will be beneficial to them throughout their lifetime as well as providing a foundation towards a vast array of possible career opportunities. Students are encouraged to become resilient, creative, and flexible and have the ability to meet challenges head on and problem solve to a successful conclusion. They should be able to plan, research, execute and evaluate a project from beginning to end using appropriate procedures, tools, equipment and machines. They should also be aware of good practice, safe working environments, the range of possible materials and outcomes as well as the work of other designers (past and present), manufacturers and in other cultures. They will work individually and as part of teams in a range of curriculum projects designed to cover the syllabus in depth but in a manner that is accessible to all abilities. In short we are encouraging innovation, risk taking and self-sufficiency in preparation for adult life.