**DT CURRICULUM PLAN**

**KEY STAGE 3**

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|  | **AUTUMN 1** | **AUTUMN 2** | **SPRING 1 & 2** | **SUMMER 1** | **SUMMER 2** |
| **GROUP 1/2****Scheme of Work** | Toy Train Wood Work skills | Toy Train Wood Google sketch up skills | Operation Game &USB lamp Electronic Skills | Technical drawing Skills | Computer Aided Drawing skills (2d Design) ear wrap project |
| **Example of Tasks** | * *Introduction to Workshop Health and Safety rules*
* *To accurately measure and mark out using correct tools*
* *Identify and name key practical tools.*
* *identify properties regarding hard and soft woods*
* *accurately use a tenon saw*
* *safely produce a housing wood joint*
* *demonstrate ability to use and change a pillar drill*
* *be introduced to CADCAM*
 | *All pupils will:* Be able to open up Google Sketch up, select a template and begin to design a chair*Most pupils will:* Create a design that resembles a 3D image of a chair*Some pupils will*: Investigate other tools and features available in Google Sketch up such as shadows and fog*All pupils will:* be able to use the software to create the basic shape of a house and add rendering.*Most pupils will:* be able to develop their house design so that it has windows, a door, a garage and suitable rendering. *Some pupils will*: have added design features to their house for example, extensions, windows, a door, a garden etc.*All pupils will:* have completed the basic house design started last week*Most pupils will:* Have begun to develop their first house of the future using Google Sketch up *Some pupils will*: Have completed at least one house and have begun designing a second oneHave completed at least one house of the future*Most pupils will:* Have a designed a number of houses as part of their ‘street of the future’ | Pupils learn the basic design process through the creation of a USB powered Mood Lamp. They learn how to analyse existing products, design initial ideas by hand using 2D sketching techniques as well as sophisticated CAD (Computer Aided Design) skills using Adobe Photoshop and 2D Design to design their final products. Pupils also learn about electronic systems, basic components and their uses. Pupils are also expected to use CAM (Computer Aided Manufacture) to help produce their final product. In addition to all of this pupils are expected to make their own circuit for their lamp. This project is an excellent introduction to Product Design as it teaches a wide variety of basic skills that will fully prepare pupils for the rest of the Technology curriculum. | To develop an understanding of the equipment used in drawing   Prepare/ Lay out a sheet of drawing paper accurately.  To create neat lettering style for drawing paper.  To understand and develop skills in drawing in isometric  / oblique projection and Orthographic Projection.  Practice the following drawing techniques:  3D representation;  Oblique projection  Isometric projection  Perspective  Orthographic projection 1st and 3rd Angle | Design and manufacture a headphone wrap that fits in your pocket and stops the wire getting tangled.1: D – Design task, user profile 2: D – Spec and existing product analysis3: D – Annotated designs, render & enhance4: M – 2D Design and lasered model5: M – Annotate and adapt6: M – Laser final product7: D – Design packaging8: M - Vacuum forming9: E – Evaluation against spec & user10: Overflow |

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|  | **AUTUMN 1** | **AUTUMN 2** | **SPRING 1 & 2** | **SUMMER 1** | **SUMMER 2** |
| **GROUP 3/4****Scheme of Work** | Picture Frame Wood Work Skills | Picture Frame Wood Work Skills Google sketch up skills | USB pen drive Electronic Skills | Computer Aided Drawing skills (2d Design) clocks project | Metal work sculpture |
| **Example of Tasks** | *Project: Wooden picture frame Project Keywords/symbols: research, design brief, design specification, evaluation, sketch, template, measuring and marking out, shaping wood, preparing wood surface, applying finish. Summary: Students will have an opportunity to experience a design and make task. They will research for inspirational shapes/objects on the internet, draw four designs and evaluate each for good points and bad points with assistance and choose a final design. They will select tools and equipment for each process in the making. Students will learn and follow relevant Health & Safety rules in the making. They will make a step by step plan for the main processes with assistance. They will be given the opportunity to practise their numeracy and literacy skills throughout the sessions. Students will have the opportunity to test and evaluate their end product.* | *All pupils will:* Be able to open up Google Sketch up, select a template and begin to design a chair*Most pupils will:* Create a design that resembles a 3D image of a chair*Some pupils will*: Investigate other tools and features available in Google Sketch up such as shadows and fog*All pupils will:* be able to use the software to create the basic shape of a house and add rendering.*Most pupils will:* be able to develop their house design so that it has windows, a door, a garage and suitable rendering. *Some pupils will*: have added design features to their house for example, extensions, windows, a door, a garden etc.*All pupils will:* have completed the basic house design started last week*Most pupils will:* Have begun to develop their first house of the future using Google Sketch up *Some pupils will*: Have completed at least one house and have begun designing a second oneHave completed at least one house of the future*Most pupils will:* Have a designed a number of houses as part of their ‘street of the future’ | * Write a Design Brief
* Analyse existing products
* Write a Design Specification
* Create an effective Mood Board to help you generate ideas
* Use a combination of 2D and 3D Sketching techniques to generate a range of Initial Ideas
* Use Modelling & Further Research to help you Develop your ideas
* Create a Final Design based on your Development work
* Use CAD (Computer Aided Design) to create your product - Using 2D Design to plan and draw out your final design
* Use CAM (Computer Aided Manufacture) to manufacture your product - Using the Laser Cutter to cut out your designs
* Assemble your product accurately and to an excellent standard
* Research and make a suitable packaging for your USB Pen drive
* Evaluate your final product critically and identify areas of improvement

**Mile stone assessments*** Investigation – Brief
* Investigation – product analysis
* Investigation – Specification
* Investigation – Mood Board
* Initial Ideas
* Development
* Final Design
* CAD
* Making
* Packaging
* Evaluating
 | Focus on more traditional aspects of the subject to create a clock. Here we build on their knowledge of the design process, and explore more 2D sketching and presentational techniques as well as some aspect of 3D. Pupils learn about different mechanisms, and then design a suitable range of ideas to suit their chosen target market.  They also learn about the properties of different materials and how to use more traditional hand tools to manipulate them. As well as focusing on traditional workshop skills pupils also integrate modern methods such as CAD and CAM using the laser cutter to create their ideas. | *Week 1: Types of metals, their properties and applications. Heat treatment and their effect on metals. Week 2: Design brief and specification and initial ideas. Week 3: Primary forming processes (casting and forging) Week 4: Wasting processes (drilling, milling and turning) Week 5: Develop design using CAD and finishing techniques for metals. Week 6: Produce production plan and start practical**Week 7: Manufacturing Week 8: Manufacturing. Week 9: Finishing product. Week 10: Evaluation and testing. Week 11: Produce sustainability report. Week 12: Assessment.* |