Dawn House School:
Design Technology Progression Map

Engage, Develop, Communicate, Aspire

Primary 1:	Primary 2:	Junior:
Exploration and Investigation: • Encouraging curiosity by exploring different materials and objects, noticing their properties and potential uses. **Fine Motor Skills:** • Developing hand-eye coordination and control through activities like cutting, gluing and assembling materials. **Basic Tool Use:** • Learning to use simple tools safely, such as scissors, paintbrushes and glue sticks. **Material Handling:** • Experimenting with different materials (e.g., paper, fabric, clay) to understand their textures, strengths, and suitability for different tasks. **Imaginative Play:** • Using imagination to create models, structures, or other items, fostering creativity and problem-solving skills. **Simple Construction:** • Building and constructing basic models or structures using a variety of materials, understanding how parts fit together. **Pattern Recognition:** • Identifying and creating patterns, which can involve activities like arranging shapes or colours in a sequence.	**Developing Ideas:** • Begin to generate ideas through discussing and drawing, using their own experiences and imagination. **Planning:** • Start to make simple plans or drawings to show their ideas before they make something. **Tool Handling:** • Use basic tools safely and correctly, such as scissors, glue and simple hand tools. **Material Selection:** • Choose appropriate materials and components to create a product, explaining why they selected them. **Joining Techniques:** • Learn and use different techniques for joining materials together, such as gluing, tying or using tape. **Cutting Skills:** • Improve accuracy and control when cutting materials with scissors or other safe cutting tools. **Building and Assembling:** • Construct simple structures, understanding how different parts can be assembled to create a whole. **Exploring Mechanisms:** • Begin to explore and understand basic mechanisms, such as wheels and axles, sliders and levers.	**Idea Generation:** • Generate more detailed ideas through discussions, drawings and mock-ups, considering their own experiences and imagination. **Planning and Design:** • Create simple, labelled plans and diagrams to communicate their design ideas before making something. **Tool Handling:** • Use a wider range of tools safely and with greater control, including scissors, hole punches, and child-friendly saws. **Material Selection and Testing:** • Choose and test a variety of materials for specific purposes, explaining their choices based on the properties of the materials. **Joining Techniques:** • Learn and use more complex techniques for joining materials, such as using adhesives, fasteners or sewing. **Cutting and Shaping Skills:** • Improve precision and control when cutting and shaping materials using a variety of tools. **Building and Constructing:** • Construct more complex structures, understanding how different components can be assembled to create a stable product. **Exploring Mechanisms and Structures:**

Basic Design Concepts: • Drawing or talking about their ideas before starting a project, understanding the basic concept of planning. **Observational Skills:** • Looking closely at objects and noticing details, differences, and similarities. **Collaborative Play:** • Working with peers on shared projects, developing teamwork and communication skills. **Problem Solving:** • Encountering and overcoming simple challenges, such as figuring out how to balance a structure or how to join materials together. **Spatial Awareness:** • Understanding and using space effectively in their creations, such as arranging objects within a defined area. **Expressive Skills:** • Using art and design as a form of expression, conveying ideas, emotions, or stories through their creations. **Evaluation and Adaptation:** • Beginning to evaluate their work, thinking about what they like and what they might change or improve next time.	**Evaluating Products:** • Look at existing products and begin to express what they like and dislike about them, using simple vocabulary. **Problem Solving:** • Encounter and address simple design problems, thinking about how to improve their product. **Exploring Textures and Materials:** • Experiment with a variety of materials (e.g., fabric, paper, card) to understand their properties and uses. **Creating Patterns and Decorations:** • Use techniques such as painting, printing, and collage to add decoration to their projects. **Health and Safety:** • Understand basic health and safety rules when working with tools and materials. **Collaboration and Sharing:** • Work together on group projects, sharing ideas, resources, and responsibilities.	• Explore and understand more complex mechanisms and structures, such as hinges, pulleys and simple circuits. **Product Evaluation:** • Evaluate their own products and those of others, suggesting improvements and identifying what works well and what does not. **Problem Solving and Iteration:** • Solve design problems through iterative testing and refinement, improving their product based on feedback and observations. **Exploring Textures, Colours, and Materials:** • Experiment with and combine different materials (e.g., fabric, wood, metal) to understand their properties and uses. **Decorative Techniques:** • Use a variety of techniques, such as painting, printing, and embossing, to add aesthetic value to their projects. **Understanding and Applying Health and Safety:** • Demonstrate a clear understanding of health and safety rules when working with tools and materials, ensuring a safe working environment. **Collaboration and Teamwork:** • Engage in group projects, developing skills in teamwork, sharing ideas and distributing tasks effectively.

Key Stage 3:

Exploration and Investigation:
- Encouraging curiosity by exploring different materials and objects, noticing their properties and potential uses.

Fine Motor Skills:
- Developing hand-eye coordination and control through activities like cutting, gluing and assembling materials.

Tool Use:
- Learning to use simple tools safely, such as scissors, paintbrushes and glue sticks.

Material Handling:
- Experimenting with different materials (e.g., paper, fabric, clay) to understand their textures, strengths and suitability for different tasks.

Imaginative Play:
- Using imagination to create models, structures, or other items, fostering creativity and problem-solving skills.

Simple Construction:
- Building and constructing basic models or structures using a variety of materials, understanding how parts fit together.

Pattern Recognition:
- Identifying and creating patterns, which can involve activities like arranging shapes or colours in a sequence.

Design Concepts:
- Drawing or talking about their ideas before starting a project, understanding the basic concept of planning.

Observational Skills:
- Looking closely at objects and noticing details, differences and similarities.

Collaborative Play:
- Working with peers on shared projects, developing teamwork and communication skills.

Problem Solving:
- Encountering and overcoming simple challenges, such as figuring out how to balance a structure or how to join materials together.

Expressive Skills:
- Using art and design as a form of expression, conveying ideas, emotions, or stories through their creations.

Evaluation and Adaptation:
- Beginning to evaluate their work, thinking about what they like and what they might change or improve next time.

Key Stage 4/5 Options (D10 – D13):	Key Stage 4/5 Options (D13 – D16):
Idea Generation: • Generate innovative and creative design ideas, considering a range of factors such as functionality, aesthetics and sustainability. **Planning and Design:** • Develop detailed and comprehensive design plans, including annotated sketches, CAD drawings and technical specifications. **Specialist Tool Proficiency:** • Demonstrate proficiency in using a wider range of specialist tools and equipment, including power tools such as routers, soldering irons and laser cutters. **Material Science and Selection:** • Understand advanced material properties and make informed decisions about material selection based on specific project requirements and sustainability considerations. **Joining and Assembly Techniques:** • Utilize advanced joining techniques such as welding and brazing, ensuring precision and structural integrity in assemblies. **Precision Machining and Finishing:** • Employ precision machining techniques to achieve intricate shapes and details, and apply advanced finishing methods to enhance product aesthetics. **Problem-Solving:** • Apply creative problem-solving strategies to overcome design challenges, adapting designs as necessary to achieve optimal outcomes. **Analysis and Evaluation:** • Conduct comprehensive evaluations of products, considering factors such as functionality, user experience, and environmental impact, and propose improvements based on findings. **Sustainability and Ethical Considerations:** • Consider sustainability and ethical implications throughout the design process, exploring alternative materials and manufacturing methods to minimize environmental impact.	**Design Thinking and Innovation:** • Encourage critical thinking and innovation through problem-solving activities that require designing solutions to complex issues. **Research and Analysis:** • Teach students to research existing products and solutions, analyse their effectiveness and identify areas for improvement or innovation. **Concept Development and Sketching:** • Develop skills in freehand sketching, rendering, and using computer-aided design (CAD) software to create detailed technical drawings and models. **Understanding Materials:** • Deepen understanding of the properties and uses of a wide range of materials, including metals, plastics, woods, and composites and how these can be manipulated in manufacturing. **Tool and Machine Use:** • Introduce more sophisticated tools and machines, ensuring students understand their operations and safety procedures. **Prototyping and Model Making:** • Foster skills in creating detailed and functional prototypes using a variety of techniques and materials to test and refine designs. **Sustainability in Design:** • Emphasize the importance of designing sustainable and eco-friendly products, considering the entire lifecycle from material sourcing to product disposal. **Quality Control and Testing:** • Teach methods of testing and quality control, evaluating products against a set of predefined standards or requirements. **Client-Centred Design:** • Simulate real-world projects where students design solutions tailored to specific client needs or market gaps, focusing on user-centred design principles. **Collaborative Projects:** • Encourage teamwork through group projects that mimic industry processes, fostering communication and collaboration skills.

Design for Manufacture (DFM): • Design products with manufacturability in mind, considering factors such as cost, scalability and ease of production. **Presentation and Communication Skills:** • Effectively communicate design concepts and ideas through presentations, reports, and multimedia platforms, demonstrating clear articulation of design rationale and process.	**Evaluation and Iterative Design:** • Instill a mindset of continuous improvement, teaching students to critically evaluate their products and iterate their designs based on feedback and testing. **Ethical and Cultural Awareness:** • Discuss the ethical implications of design and technology, including cultural sensitivity in design, ethical sourcing of materials, and the social impact of technological innovations.