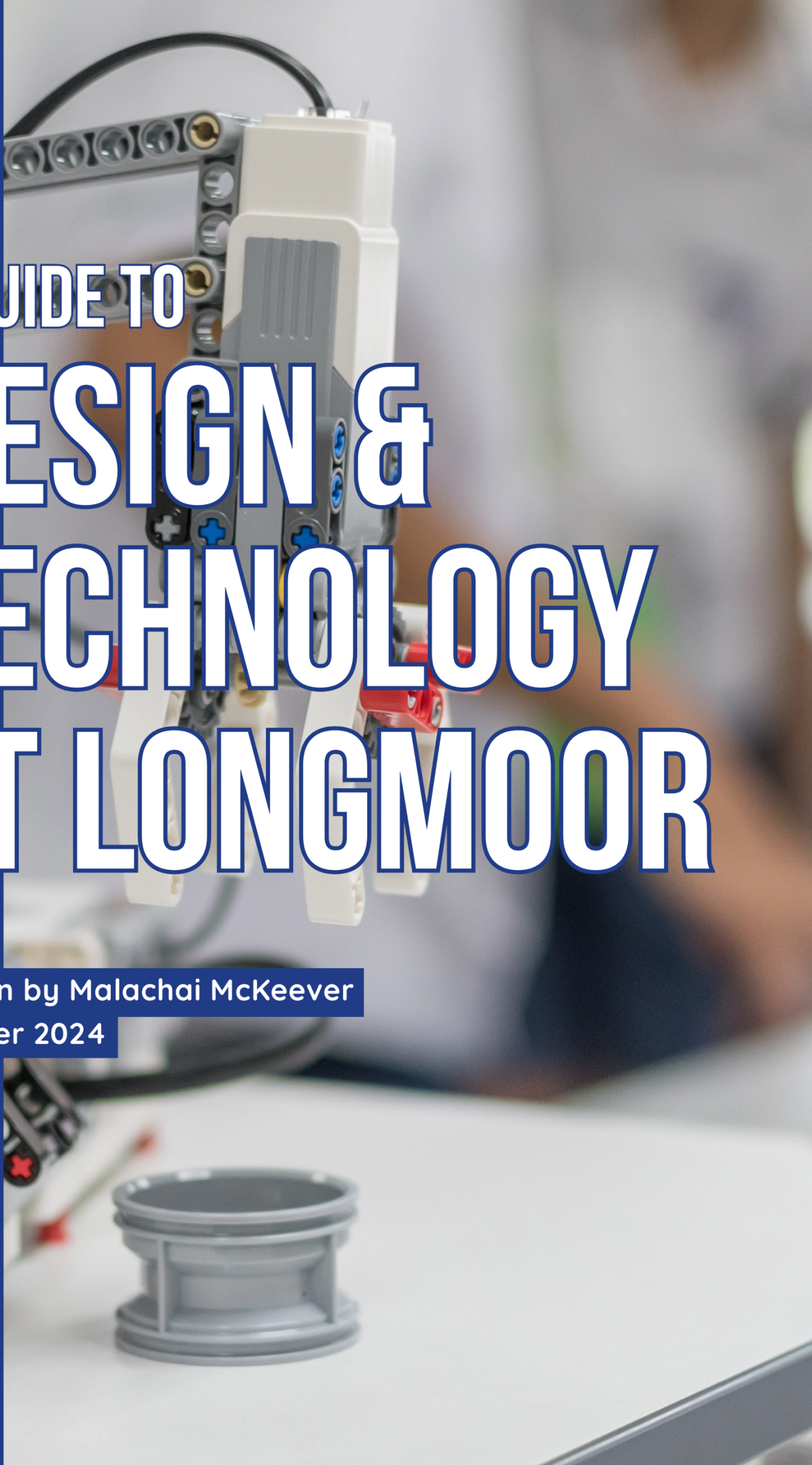


A GUIDE TO DESIGN & TECHNOLOGY AT LONGMOOR

Written by Malachai McKeever

October 2024

Longmoor
Community Primary School

Vision

At Longmoor Community Primary School, our Design and Technology (D&T) curriculum is ambitious, inspiring, and fully aligned with the National Curriculum's Purpose of Study and Aims. Rooted in our school ethos, it fosters creativity, resilience, and problem-solving skills. Our curriculum empowers pupils to think critically, work collaboratively, and develop innovative solutions to real-world challenges.

D&T is a rigorous and practical subject where pupils use creativity and imagination to design and make products that solve meaningful problems. They apply knowledge from a range of disciplines, including mathematics, science, engineering, computing, and art, to develop solutions that are functional and aesthetically considered.

We encourage pupils to take risks, fostering resourcefulness, innovation, and enterprise. By evaluating past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.

A key aspect of our curriculum is ensuring that children develop their knowledge of nutrition and cooking skills progressively, fostering independence and resilience in the kitchen.

Curriculum Design

Our Design Technology curriculum has been purposefully structured to promote creativity, innovation, and technical skill development from Nursery to Year 6.

Key Disciplinary Areas (Threads)

Children revisit and build upon the following areas throughout their learning journey:

- Structures
- Textiles
- Mechanisms (Mechanical Systems)
- Electrical Systems
- Food, Cooking, and Nutrition

These disciplines are explored through carefully planned projects that ensure skill progression and the opportunity for iterative design processes.

Projects on a Page

Our curriculum follows the Projects on a Page framework, which is based on six essential principles for effective D&T practice:

- **User:** Children design with a clear user in mind, considering their needs and preferences.

- **Purpose:** Every product has a defined function and can be evaluated in use.
- **Functionality:** Designs must work effectively, integrating aesthetic and practical elements.
- **Design Decisions:** Pupils make informed choices about materials, techniques, and the final product.
- **Innovation:** Open-ended projects encourage creative problem-solving.
- **Authenticity:** Children create meaningful, real-world products, not just replicas.

To ensure these principles are consistently applied, teachers incorporate regular formative assessment, peer feedback, and reflection opportunities within each project cycle. An example of successful implementation is the Year 5 mechanical systems unit, where pupils design and refine a moving toy, applying all six principles in practice.

Our curriculum ensures that prior learning is revisited and built upon, supporting long-term retention and progression of skills.

Teaching Pedagogy

Each term, our curriculum immerses every year group in a real-world design challenge, enabling pupils to explore problems, identify practical solutions, and design with a clear user and purpose in mind. Pupils engage in research, evaluating and comparing existing products to inspire innovation and ensure their designs are functional, effective, and meaningful.

Building on established best practice, each Project Planner incorporates three essential types of activities:

- **Investigative and Evaluative Activities (IEAs):** Pupils explore and analyze existing products, gaining insight into the role of D&T in the wider world, including historical and contemporary contexts.
- **Focused Tasks (FTs):** Pupils develop specific technical knowledge, design principles, and making skills through direct instruction and hands-on experiences.
- **Design, Make, and Evaluate Assignments (DMEAs):** Pupils apply their learning to create functional products with clear users and purposes, engaging in an iterative process of prototyping, testing, and refining their designs.

While pupils have creative ownership over their designs, the design, making, and evaluation process follows a carefully structured sequence of learning. This ensures that all pupils experience secure progression in knowledge, practical skills, and technical vocabulary. The structured learning journey is deliberately sequenced to build upon prior knowledge while fostering creativity, critical thinking, and independent problem-solving.

By embedding the 'Projects on a Page' framework into our pedagogy, we ensure that every pupil benefits from a balanced approach to innovation, structured skill development, and real-world application, preparing them to confidently engage in an increasingly technological world.

Subject Specific Adaptations

At Longmoor, our goal is to ensure that all pupils, including those with SEND, are fully included in the design, make, and evaluate process of Design and Technology. D&T provides a hands-on, practical approach to learning that can be particularly engaging for pupils with a variety of needs. Many children with SEND thrive in this subject as it allows them to express creativity, develop problem-solving skills, and work with tangible materials.

To ensure accessibility for all, we adopt a flexible, inclusive approach that removes barriers and provides meaningful opportunities for every child to succeed.

Alternative Methods of Expression

- Visual and Tactile Representation: Instead of relying solely on written design specifications, pupils can use drawings, diagrams, physical models, or digital tools to communicate their ideas effectively.
- Physical Prototyping: Learners struggling with fine motor skills or literacy can construct models using malleable materials, building confidence before working with more rigid materials.
- Verbal and Digital Alternatives: Pupils can explain their design decisions verbally, using speech-to-text software or video recordings to document their thought processes.

Adaptations for Fine Motor Skills and Sensory Needs

- Adjusting Equipment: Pupils with fine motor difficulties are provided with ergonomic tools, wider-handled scissors, and adaptive cutting or shaping aids.
- Sensory-Friendly Workstations: Pupils who experience sensory processing challenges can access quiet, low-stimulation areas with clear visual instructions.
- Scaffolding Practical Tasks: Step-by-step visual guides, now-next-then boards, and peer demonstrations support pupils in managing complex, multi-step projects.

Structured and Adaptive Learning Environments

- Clearly Defined Workstations: Stations with symbol-based labels and clear zones for tools, materials, and waste disposal help foster independence and self-management.
- Pre-Teaching & Vocabulary Support: Key D&T vocabulary (e.g., prototype, mechanism, stability, function) is pre-taught and revisited frequently using word banks, pictorial glossaries, and hands-on demonstrations.
- Flexible Grouping: While collaborative work is encouraged, children who find teamwork challenging may benefit from paired tasks, structured roles, or individual workstation options.

Supporting Attention and Cognitive Load

- Chunked Instructions: Breaking tasks into smaller, manageable steps helps pupils remain engaged and reduces overwhelm.

- Multi-Sensory Learning: Hands-on exploration of materials, live demonstrations, and interactive prototypes ensure accessibility for pupils with processing difficulties.
- Movement Breaks: Pupils who struggle with attention benefit from structured movement breaks or physically active roles within projects (e.g., tool management, fetching materials).

Encouraging Risk-Taking and Iterative Design

- Growth Mindset Approach: Pupils are encouraged to see mistakes as part of the design improvement cycle, ensuring that they feel confident experimenting with ideas.
- Scaffolded Evaluation: Pupils struggling with critical reflection can use sentence starters, peer discussions, and teacher prompts to guide their evaluations.

By embedding these adaptations within our Projects on a Page framework, we ensure that every child can design, create, and evaluate products that are meaningful and accessible, fostering confidence and independence in their learning.

Assessment

Building a clear picture of what pupils know, understand, and can do in each D&T project is essential for progressing their learning and ensuring that they develop secure knowledge and skills over time.

Our assessment approach is embedded within each stage of the design process, ensuring that pupils reflect on their progress and teachers provide meaningful feedback to move learning forward. Each Project Planner lists the key learning outcomes in designing, making, evaluating, and technical knowledge, which serve as the foundation for assessment.

Key Assessment Strategies

- Continuous Observation: Teachers actively monitor pupils during practical tasks, intervening to address misconceptions and guide improvements in real time.
- Targeted Questioning: Thoughtful questioning supports pupils in explaining their design decisions, evaluating their own and others' work, and refining their ideas.
- Formative Feedback: Pupils receive ongoing, personalised feedback that encourages them to modify, refine, and enhance their products, ensuring an iterative approach to design.
- Peer and Self-Assessment: Pupils regularly evaluate their work, reflecting on how their designs meet the intended user, purpose, and functionality. Structured reflection prompts help them make informed revisions.
- Pupil Conferencing and Work Reviews: Subject leaders and teachers engage pupils in discussions about their learning journey, capturing insights into their design thinking, problem-solving approaches, and technical knowledge.

The Iterative Design Process as a Model for Assessment

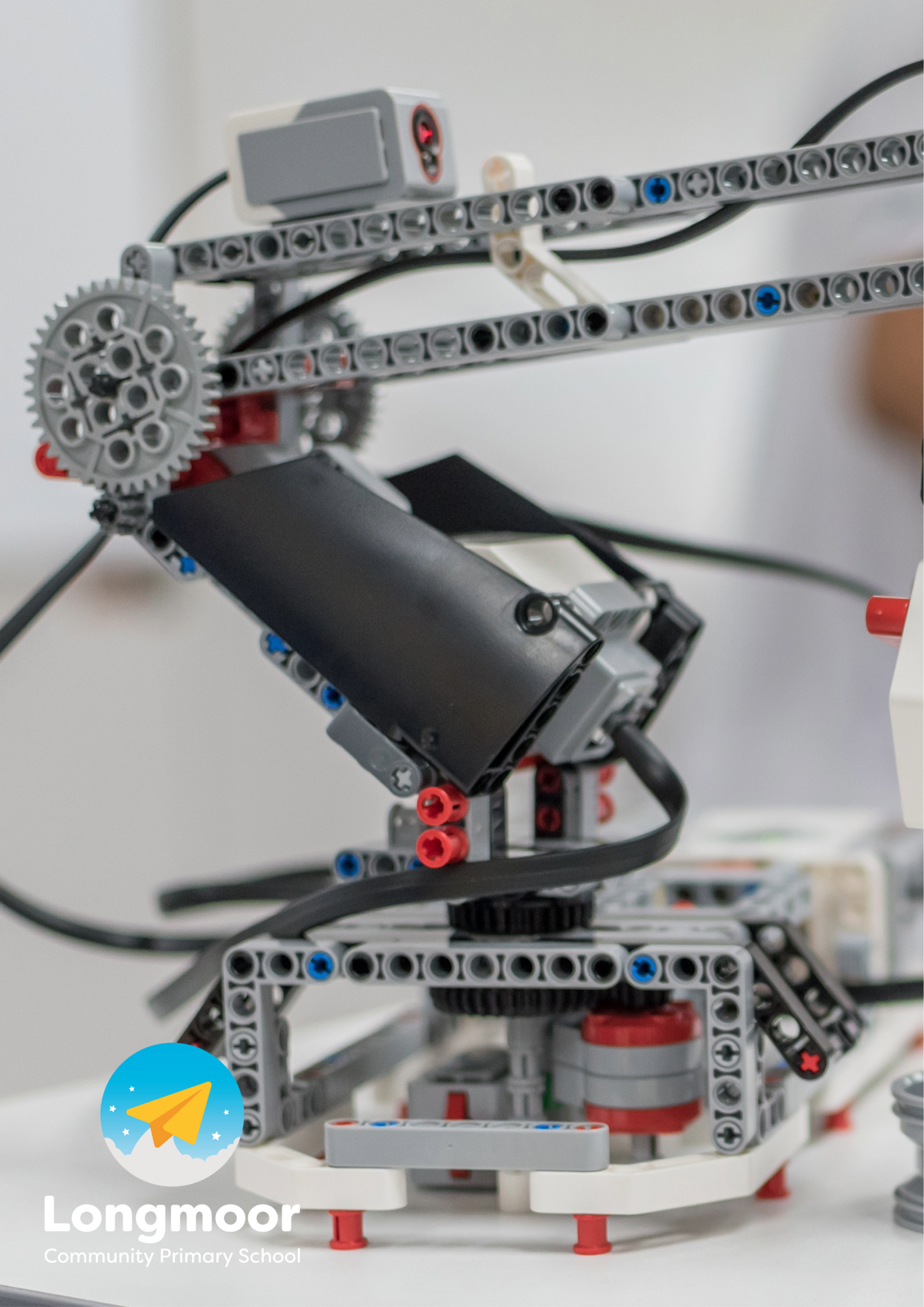
Each project follows an iterative design process, meaning pupils continually design, evaluate, refine, and improve their work. This cycle enables pupils to develop:

- Resilience – embracing feedback and making adjustments as a natural part of the creative process.
- Problem-Solving Skills – identifying challenges and adapting solutions in response to testing and evaluation.
- Independence and Ownership – taking responsibility for their design choices and refining them over time.

By integrating assessment seamlessly within the D&T process, we ensure that pupils develop confidence in evaluating their own work and understanding how to improve it, rather than relying solely on teacher judgment. This approach also allows teachers to track progression in key skills and concepts across year groups, ensuring that prior learning is built upon effectively.

Overview of the Taught Units in Design & Technology

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
N	Throughout Nursery, children will revisit objectives from Development Matters (3- & 4-year-olds) in the areas of PSED, PD, UTW, EAD. We will cover these objectives in the making of food, structures, and mechanisms. These are some examples of the DT-focused activities, throughout the year, that will be covered in line with interests/topics/themes.		Making and eating soup Tinkering with materials and moving large objects outside Making birthday cakes Making Easter nests Large construction (making dens) Preparing and eating a fruit salad Making and eating porridge Making structures using clay and playdough Making and eating frozen juice Using construction kits to build Harvesting and tasting beans and cherries from the garden Using small construction and loose parts	Select and use activities and resources, with help when needed. Use large-muscle movements to wave flags and streamers, paint and make marks. Choose the right resources to carry out their own plan. Use one-handed tools and equipment, for example, making snips in paper with scissors. Explore how things work. Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. Explore different materials freely, in order to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Create closed shapes with continuous lines, and begin to use these shapes to represent objects.		
R	**Making Soup** Discuss the key ingredients used before developing a class-based vegetable soup recipe Disciplinary: Food, Cooking and Nutrition	**Hibernation Box** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Disciplinary: Mechanisms (Mechanical Systems), Structures	**Junk Modelling** Explore and learn about various types of permanent and temporary join Disciplinary: Mechanisms (Mechanical Systems), Structures	**Bookmarks** Develop and practise threading and weaving techniques using various materials and objects. Disciplinary: Textiles	**Flower Threading and Rainbow Salad** Disciplinary: Food, Cooking and Nutrition, Textiles	**Boats** Investigate features, structure and shape of EYFS boats before designing and creating own projects. Disciplinary: Structures
	Learning Block B		**Learning Block C**		**Learning Block D**	
1	**Wheels and Axles** Design, make and evaluate a traditional moving toy Disciplinary: Mechanisms (Mechanical Systems)		**Templates and Joining Techniques** Design, make and evaluate a hat to keep a teddy cool in the sun and free from insects Disciplinary: Textiles		**Fruit and Vegetables** Design, make and evaluate a fruit salad, looking at seasonality. Disciplinary: Food, Cooking and Nutrition	
2	**Levers and Sliders** Design, make and evaluate a moving picture. Disciplinary: Mechanisms (Mechanical Systems)		**Freestanding Structures** Design, make and evaluate an animal enclosure for a farm or zoo Disciplinary: Structures		**Dips and Dippers** Make and evaluate hummus, guacamole and salsa dips. Disciplinary: Food, Cooking and Nutrition	
3	**2D Shape to 3D Product** Design, make and evaluate a packaging for a present, for example, a seasonal stocking for a younger family member Disciplinary: Textiles		**Shell Structures and Packaging** Design an accurate net for a biscuit packaging using CAD Disciplinary: Structures		**Healthy and Varied Diet** Design, make and evaluate a healthy sandwich. Disciplinary: Food, Cooking and Nutrition	
4	**Healthy and Varied Diet** Design, make and evaluate a healthy pizza. Disciplinary: Food, Cooking and Nutrition		**Flaps / Sliders / Levers** Design, make and evaluate a card for a family member Disciplinary: Mechanisms (Mechanical Systems)		**Simply Switches and Circuits** Design, make and evaluate a night light that can be controlled by a switch Disciplinary: Electrical Systems	
5	**Frame Structures** Design, make and evaluate a model bird hide. Disciplinary: Structures		**Textiles** Use Computer Aided Design to add design in textiles Disciplinary: Textiles		**Cooking and Nutrition: Soup** Design, make and evaluate soup, focusing on seasonality. Disciplinary: Food, Cooking and Nutrition	
6	**Pulleys and Gears** Design, make and evaluate a small-scale model for a fairground ride Disciplinary: Mechanisms (Mechanical Systems)		**Cooking and Nutrition: Bread** Design, make and evaluate bread, focusing on global variation. Disciplinary: Food, Cooking and Nutrition		**More Complex Switches and Circuits** Design, make and evaluate a moving model triggered by a motion sensor Disciplinary: Electrical Systems	



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