



The Raleigh Primary School

End of Year Milestones

What must children achieve in DT in order to be ready for next year?

Reception:

- Children should have some familiarity with basic shapes, colors, and textures, and be able to use these concepts in art and design projects.

Year 1:

Textiles

- Children can select appropriate materials based on design specifications and intended use.
- Children can demonstrate knowledge of basic sewing techniques, such as cutting, pinning, stitching, and knotting.
- Children can follow instructions and use patterns to create a puppet.
- Children can demonstrate creativity and problem-solving skills in designing and constructing a unique puppet.
- Children can evaluate their own work and suggest ways to improve upon future projects, demonstrating reflection and self-evaluation skills.

Mechanisms

- Children can explain the function and design of a windmill, including how the rotation of the blades is used to generate electrical energy.
- Children can identify and name the parts of a windmill and explain how each part contributes to its overall function.
- Children are introduced to the concept of renewable energy sources
- Children can design, create, and test their own windmill prototypes using recycled materials, exploring the principles of aerodynamics and engineering.
- Children have the opportunity to reflect on the social, historical, and cultural significance of windmills.

Structures

- Children can identify and describe different types of wheels and axles, including their shapes, sizes, and functions.
- Children can recognise the different types of vehicles that use wheels and axles, such as cars and bikes.
- Children can explain how wheels and axles work together to provide increased mobility and movement.
- Children can design and create their own simple vehicles using wheels and axles.
- Children can evaluate the effectiveness of their own designs and apply this learning to future designs.

Food

- Children can identify different types of fruits and vegetables and understand the importance of incorporating them into a healthy and balanced diet.
- Children can describe the life cycle of plants and understand the basic requirements for growing fruits and vegetables, such as water, sunlight, and nutrients.
- Children can prepare a simple smoothie recipe using a variety of fruits and vegetables and understand the importance of hygiene and food safety when handling and preparing fresh produce.

Year 2:

Mechanical Systems

- Children can demonstrate an understanding of the mechanics of rotating wheels and other mechanical systems.
- Children can identify different types of wheels and explain their function.
- Children can apply their understanding of mechanical systems to design and create their own.
- Children can describe how rotating mechanical systems are used in everyday life.
- Children can evaluate their own designs based on criteria such as reliability, durability, functionality, and safety.

Structures

- Children can identify and name man-made and natural structures.
- Children can explain the types of weather conditions that can impact structures.
- Children can design and construct a model of a man-made structure that can withstand weather and erosion.



- Children can compare the properties of different materials and understand how these materials can be used to build structures that are strong and durable.
- Children can engage in collaborative problem-solving activities.

Mechanisms

- Children can identify and understand the purpose of basic mechanisms such as levers and explain how they work.
- Children can explain how input and output motions work and how they relate to common toys and objects.
- Children can design and create their own paper-based mechanisms using basic materials like cardboard, paper clips, and string.
- Children can identify and explain the functions of common levers and linkages.
- Children can apply their understanding of mechanisms to design and create their own toys using a variety of materials.

Food

- Children can identify different food groups and explain their nutritional benefits.
- Children can describe the different tastes, textures, and smells of various ingredients.
- Children can prepare and present a variety of healthy and nutritious foods.
- Children can demonstrate an understanding of food safety and hygiene.
- Children can create different types of wraps and fillings, putting them together to make a nutritious meal.

Year 3:

Mechanical Systems

- Children can design and create their own pneumatic toys using appropriate tools and materials.
- Children will have a good understanding of different types of wood and their properties.
- Children will be able to use appropriate tools and techniques to create wooden components.
- Children will be proficient in using labels, arrows, and explanations to communicate their design ideas.
- Children can understand key design criteria and evaluate their own designs, taking into account functionality, durability, and aesthetics.
- Children can create detailed exploded diagrams of their designs.

Electrical Systems

- Children can identify and describe the basic components of an electrical circuit.
- Children can design and create a simple circuit using CAD software.
- Children can explain the functions of different types of motors and how they can be used in different products.
- Children can analyse and evaluate the electrical systems of existing products, identifying strengths and weaknesses.
- Children can collaboratively design and create a functioning electrical product, demonstrating an understanding of electrical safety and the importance of testing and evaluation.

Structures

- Children can identify and describe different types of 2D and 3D shapes, including geometric shapes.
- Children will have a clear understanding of the concept of a 'net' and be able to use this knowledge to create their own paper models.
- Children can accurately measure and cut paper, demonstrating an understanding of precision.
- Children will have practical knowledge of how to join and connect 3D shapes using glue.
- Children can describe the design features of the Disneyland castle, analysing its structural integrity and aesthetic appeal.

Food

- Children can identify and name a variety of fruits and vegetables, including taste properties.
- Children will understand the importance of a balanced and varied diet in relation to personal health.
- Children will have a basic understanding of the process of growing fruits and vegetables, including factors such as climate and the environment.
- Children can follow a simple recipe and demonstrate basic cooking skills.
- Children will understand the importance of seasonal produce in terms of taste, quality and environmental sustainability.

Year 4:

Structures

- Children can identify and explain the different types of structures and the materials used in their construction.
- Children will demonstrate an understanding of the use of cladding to enhance the appearance of a structure.



- Children will understand how to design and plan a structure using joints to connect.
- Children can reflect on the design and construction process.

Electrical Systems

- Children can identify and describe the basic features of a torch.
- Children can understand how to use a switch to control the flow of electricity in a circuit.
- Children can understand the difference between conductors and insulators and be able to identify specific materials that fall into each category.
- Children can design and create their own simple electrical circuits using a variety of provided materials.
- Children will have an appreciation for the role of electricity in modern technology.

Mechanical Systems

- Children understand the fundamental concepts of mechanical systems, including how different parts work together to create motion and force.
- Children will know how to design and create effective paper-based mechanical systems.
- Children will develop an understanding of the principles of aerodynamics and air resistance, and how these forces can impact the performance of mechanical systems.
- Children can understand the basics of automotive design, including the purpose of a car's chassis and the role of different components in making the car move.
- Children will explore the potential of futuristic mechanical systems.

Food

- Children can follow a recipe for making biscuits with accurate measurements, timing and temperature.
- Children can identify and describe the key features of a biscuit, including its taste, smell, appearance, texture and crumb.
- Children can experiment with different ingredients, flavours and textures to create bespoke biscuit recipes.
- Children will have a strong understanding of food safety and hygiene best practices, including hand washing, cross-contamination, safe storage and handling of ingredients.
- Children can plan and execute a successful biscuit-making project, including ingredient selection, recipe adaptation, budgeting and time management, and presentation of the finished product.

Year 5:

Mechanical Systems

- Children will have working knowledge of the mechanisms used in pop-up book design, specifically understanding how levers, sliders, layers and spacers can be used to create engaging and interactive displays.
- Children can demonstrate their ability to innovate and problem solve through the use of unique and creative designs for their pop-up book.
- Children can work collaboratively with their peers during the design and creation of their pop-up book.

Electrical Systems

- Children can identify and describe key components of various electrical systems, including circuits, switches, and batteries.
- Children will have a strong understanding of the ways in which technology has changed the world, including how information is shared, how people communicate, and how technology has impacted the workplace.
- Children can create their own functional micro:bit projects using coding skills, demonstrating an understanding of the basics of programming and logical thinking.
- Children can design and create their own custom LED panel and user interface inspired by a specific pattern or theme, demonstrating an ability to use technology for creative expression.

Structures

- Children can identify and describe the properties of different types of wood, including their strength and durability.
- Children can distinguish between strong and weak shapes when creating structures and understand how supporting shapes can improve the stability and weight-bearing capacity of their designs.
- Children will have a working knowledge of the engineering principles behind the construction of famous structures and be able to explain how key components such as triangles are used to support loads and distribute weight.
- Children can use a range of tools safely and effectively when creating their own wooden structures, and understand the importance of reinforcing joints and connecting pieces securely.
- Children can apply their knowledge and skills to design and build a bridge that can hold a given weight, using a variety of techniques to ensure its stability and durability.



Food

- Children can demonstrate an understanding of the principles of beef farming, including the rearing and slaughtering processes, and how these processes affect the nutritional value of beef.
- Children can identify and explain healthy meal and explore the benefits of eating a balanced diet.
- Compare the nutritional value of different recipes and make informed decisions about which recipes to choose based on their nutritional value.
- Children will work collaboratively in a team to cook a healthy bolognese sauce, using fresh ingredients and making adjustments to the recipe as necessary to achieve a balanced and nutritious meal.
- Children will design and produce packaging for the bolognese sauce that visually communicates its nutritional value and highlights its healthy ingredients in order to encourage consumers to make a healthy eating choice.

Year 6:

Structure

- Children can create a detailed plan for a playground structure, taking into consideration the landscape features and play features for children.
- Children can select appropriate materials to use and utilise a variety of joining techniques and saws to create a sturdy and safe playground apparatus.
- Children can evaluate their peers' playground designs and provide constructive feedback on areas for improvement or strengths.
- Children can securely attach their playground apparatus to a base or foundation, ensuring it is stable and secure for children's play.
- Children can incorporate elements of sustainability and environmental awareness into their playground design and construction, using recycled materials where possible and considering the impact on their local ecosystem.

Textiles

- Children will know how to thread a needle, tie a knot, use a running stitch, and attach basic fastenings.
- Children will experiment with different designs and patterns to create their own personalised textile projects, incorporating a range of decorative techniques such as embroidery, applique, and fabric painting.
- Children will have a good understanding of the concept of "make do and mend" and be able to repurpose old fabrics or garments by altering, repairing, or upcycling them.
- Children will create a basic waistcoat using a pattern, selecting appropriate fabrics and materials, and applying a range of sewing techniques.

Electrical Systems

- Children can design and create basic electrical systems, understanding how circuits work and how to use different components.
- Children can work with clients to develop a clear brief for a design project, understanding the importance of meeting specifications and working within constraints.
- Children can use a cardinal compass to accurately measure and orient objects in three-dimensional space, developing spatial awareness and the ability to work with mathematical concepts.
- Children can identify errors (bugs) in their own work and the work of others, using problem-solving skills to test and iterate their designs and ensure quality.
- Children can create 3D CAD models using tools such as TinkerCAD, understanding the basics of computer-aided design and how it can be used to solve real-world problems.

Food

- Children will have the ability to follow a recipe from start to finish, using ingredients and equipment correctly and safely to create a delicious and visually appealing dish.
- Children can identify and work within a budget, choosing ingredients and equipment based on both financial and quality considerations.
- Children will have a strong understanding of measurements and be able to accurately measure quantities of ingredients to ensure their dish turns out perfectly every time.
- Children will know how to plan and execute a 3-course meal as a group, taking into consideration different dietary requirements and preferences of the guests they are cooking for.
- Children will write a recipe that is detailed, clear and concise, including all the necessary steps, cooking times and equipment required to create their dish.