

Milestones

Design Technology (DT)

Cycle C

It is our aim that children in Year 4 will be achieving at the Basic level as they begin their journey of experiencing these areas of the Design Technology curriculum. Year 5 children will achieve the 'Basic' to 'Expected' levels and Year 6 children will be achieving at the 'Expected' and 'Deep' level.

Mechanical Systems (Pulleys & Gears)	Basic:	Expected:	Deep:
Prior Learning/ Experiences			
Experience of axles, axle holders and wheels that are fixed or free moving.			
Basic understanding of electrical circuits, simple switches and components.			
Experience of cutting and joining techniques with a range of materials including card, plastic and wood.			
An understanding of how to strengthen and stiffen structures.			
Designing			
Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.			
Develop a simple design specification to guide their thinking.			
Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.			
Making			
Produce detailed lists of tools, equipment and materials.			
Formulate step-by-step plans and, if appropriate, allocate tasks within a team.			
Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.			
Evaluating			
Compare the final product to the original design specification.			
Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.			
Consider the views of others to improve their work.			
Investigate famous manufacturing and engineering companies relevant to the project.			
Technical knowledge and understanding			
Understand that mechanical and electrical systems have an input, process and an output.			

Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.			
Know and use technical vocabulary relevant to the project.			
Electrical Systems (Monitoring & Control)	Basic:	Expected:	Deep:
Prior Learning/ Experiences			
Initial experience of using computer control software and an interface box, a standalone box or microcontroller, e.g. Crumble.			
Some experience of writing and modifying a program to make a light turn on or flash on and off			
Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.			
Designing			
Develop a design specification for a functional product that responds automatically to changes in the environment.			
Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams.			
Making			
Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.			
Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.			
Create and modify a computer control program to enable their electrical product to respond to changes in the environment.			
Evaluating			
Continually evaluate and modify the working features of the product to match the initial design specification.			
Test the system to demonstrate its effectiveness for the intended user and purpose.			
Technical knowledge and understanding			
Understand and use electrical systems in their products.			
Understand the use of computer control systems in products.			
Apply their understanding of computing to program, monitor and control their products.			
Know and use technical vocabulary relevant to the project.			
Electrical Systems (Complex Circuits)	Basic:	Expected:	Deep:
Prior Learning/ Experiences			
Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.			

Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.			
Designing			
Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost.			
Generate and develop innovative ideas and share and clarify these through discussion.			
Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.			
Making			
Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.			
Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.			
Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.			
Evaluating			
Continually evaluate and modify the working features of the product to match the initial design specification.			
Test the system to demonstrate its effectiveness for the intended user and purpose.			
Investigate famous inventors who developed ground-breaking electrical systems and components.			
Technical knowledge and understanding			
Understand and use electrical systems in their products.			
Apply their understanding of computing to program, monitor and control their products.			
Know and use technical vocabulary relevant to the project.			