



DT Year 4 Curriculum Overview

DT must be covered in Autumn 2, Spring 2, Summer 2 and is alternated with Art (in remaining half terms)

The Big Picture

Within electrical systems, children will begin to understand about electricity, alongside their science unit too. They will understand that electricity is the energy that flows along wires in our homes, schools, offices, towns and cities to power lights, televisions, computers, cars and trains, and hundreds of other things that we use every day. Children will begin to understand that products which include electrical systems are researched, designed, made and evaluated. They will have the opportunity to research different torches, used for different purposes and for different consumers. They will be given lots of time to explore electrical circuits will give ample opportunities to explore and understand how to create them. Once shown and their confidence has developed, they will be given time to design a product using electrical systems for a purpose, for someone or something. They will be supported to develop their design ideas through discussion, observation, drawing and modelling with others. They will draw simple sketches with notes to support their explanations. They will have a clear purpose for what and who they intend to design and make their torch for. After the design stage, they will be asked to make their product, using a range of tools and techniques. They will learn how to safely measure, mark out, cut and shape materials and components using a range of tools showing some accuracy. Once they have made their products, they will evaluate it. There will be lots of discussion around how closely their product meets their design criteria and how they feel their product could be improved.

What do we already know? What can we already do?

Electrical Systems not been previously taught, however children may have some awareness around electricity and electrical circuits.

Year 4 DT- Electrical Systems Simple circuits and switches Autumn 2

NC objectives – Key Stage 2

Pupils should be taught:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

Specific unit objectives

Electrical Systems – Simple circuits and switches

- To know and understand what an electrical circuit is.
- To know and understand what a bulb, buzzer and switch is and their functions.
- To construct a simple series circuit to generate static electricity.
- To know how to make simple secure connections.

Research (objectives to cover all year)

- To explore some existing products- How well does the product achieve its purpose? how environmentally friendly is the product? How environmentally friendly are the resources?
- To evaluate the product on design and use and appearance.
- To research and find out about famous inventors and designers.

Design (objectives to cover all year)

- To develop their own design criteria.
- To use their market research to inform the design of their product.
- To identify design features that will appeal to the intended users.
- To record the plan using exploded designs and simple computer programs.

Make (objectives to cover all year)

- To use techniques which require more accuracy to cut, shape, join and finish their work e.g. cutting internal shapes and slots in frameworks.
- To use cooking techniques such as slicing, mixing, spreading, and baking.
- To join and combine ingredients by kneading.
- To measure and weight a range of ingredients using scales competently.
- To cook using a heat source with some supervision setting the temperature.

Evaluate (objectives to cover all year)

- To evaluate their work both during and at the end of the process.
- To carry out appropriate tests before making any improvements.
- To evaluate their product against the original design specification on how well it meets the needs of the user.
- To evaluate it personally discussing what does and does not work and to seek evaluation from others.

Key vocabulary and understanding for concept connectors

Electrical Systems: electrical circuit, bulb, buzzer, switch, electricity, connections

Sticky Knowledge

- An electrical circuit is a path which electricity passes.
- A complete circuit is needed for electricity to flow and devices to work.
- A bulb is a component that lights up when electricity flows through it and a switch is a component that opens and closes the electrical circuit.

Key Questions

- Do they know and understand what an electrical circuit is?
- Do they know and understand what a bulb, buzzer and switch is and their functions?
- Can they construct a simple series circuit to generate static electricity?
- Do they know how to make simple secure connections?

Key designers/ architects/ inventors:

Thomas Edison



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The Big Picture

Within mechanisms, children will begin to understand that mechanisms are researched, designed, made and evaluated. They will have the opportunity to research different products which use levers and linkages, for example story books, storyboards and cards. They will be given lots of time to explore levers and linkages will give ample opportunities to explore and understand what levers and linkages do and will have a go at fixing them to different products. Once shown and their confidence has developed, they will be given time to design a product using levers and linkages a purpose, for someone or something. They will be supported to develop their design ideas through discussion, observation, drawing and modelling with others. They will draw simple sketches with notes to support their explanations. They will have a clear purpose for what and who they intend to design and make their moving toy for. After the design stage, they will be asked to make their product, using a range of tools and techniques. They will learn how to safely measure, mark out, cut and shape materials and components using a range of tools showing some accuracy. Once they have made their products, they will evaluate it. There will be lots of discussion around how closely their product meets their design criteria and how they feel their product could be improved.

What do we already know? What can we already do?

- Know and understand what wheels, axles and axles holders are
- Know the difference between fixed and free moving axles
- Know how to fix wheels and axels to a product

Year 4 DT- Mechanisms Levers and Linkages Spring 2

NC objectives – Key Stage 2

Pupils should be taught:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

Specific unit objectives

Mechanisms – Levers and Linkages

- To know and understand how to use lever and linkages mechanisms.
- To know the difference between a fixed and loose pivot.
- To know and create guides to control movement.

Research (objectives to cover all year)

- To explore some existing products- How well does the product achieve its purpose? how environmentally friendly is the product? How environmentally friendly are the resources?
- To evaluate the product on design and use and appearance.
- To research and find out about famous inventors and designers.

Design (objectives to cover all year)

- To develop their own design criteria.
- To use their market research to inform the design of their product.
- To identify design features that will appeal to the intended users.
- To record the plan using exploded designs and simple computer programs.

Make (objectives to cover all year)

- To use techniques which require more accuracy to cut, shape, join and finish their work e.g. cutting internal shapes and slots in frameworks.
- To use cooking techniques such as slicing, mixing, spreading, and baking.
- To join and combine ingredients by kneading.
- To measure and weight a range of ingredients using scales competently.
- To cook using a heat source with some supervision setting the temperature.

Evaluate (objectives to cover all year)

- To evaluate their work both during and at the end of the process.
- To carry out appropriate tests before making any improvements.
- To evaluate their product against the original design specification on how well it meets the needs of the user.
- To evaluate it personally discussing what does and does not work and to seek evaluation from others.

Key vocabulary and understanding for concept connectors

Mechanisms: lever, linkages, movement, mechanisms, pivot, loose, fixed, guide, control

Sticky Knowledge

- A lever is rigid bar which moves around a pivot.
- The term 'linkage' is also used to describe the lever and linkage mechanism as a whole.
- A fixed pivot attaches a lever to a base.
- A loose pivot attaches two levers together.

Key Questions

- Do they know and understand how to use lever and linkages mechanisms?
- Do they know the difference between a fixed and loose pivot?
- Can they create guides to control movement?

Key designers/ architects/ inventors:

Jacques de Vaucanson



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The Big Picture

Within food, children will begin to develop an understanding of what nutritional benefits food gives us and how a variety of foods helps our bodies and minds stay healthy. They will learn about where to find the nutritional information on packaging and will begin to understand the meaning behind this. They will develop an understanding around which foods are grown in which countries and continents.

They will be supported to develop their design ideas through discussion, observation, drawing and modelling with others. They will draw simple sketches with notes to support their explanations. They will have a clear purpose for what and who they intend to design and make their flavoured bread for. After the design stage, they will be asked to make their product, using a range of tools and techniques. They will learn how to use cooking techniques such as slicing, mixing, spreading, and baking. They will join combine ingredients by kneading, to make their flavoured bread. Children will measure and weight a range of ingredients using scales competently. Once they have made their products, they will evaluate it. There will be lots of discussion around how closely their product meets their design criteria and how they feel their product could be improved.

What do we already know? What can we already do?

- Know the five food groups from the eat-well plate
- Understand that all foods must be farmed, grown or caught and that food comes from the UK and across the world
- Know safety and food hygiene procedures and follow them confidently
- Know some famous chefs



NC objectives – Key Stage 2

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Cooking and Nutrition

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Specific unit objectives

Food- Healthy and Varied Diet

- To understand what nutritional benefits different food types give us.
- To know where to find the nutritional information on packaging.
- To know which foods are grown in different countries and continents.
- To know and follow a range of safety and food hygiene procedures.

Research (objectives to cover all year)

- To explore some existing products- How well does the product achieve its purpose? how environmentally friendly is the product? How environmentally friendly are the resources?
- To evaluate the product on design and use and appearance.
- To research and find out about famous inventors and designers.

Design (objectives to cover all year)

- To develop their own design criteria.
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Evaluate (objectives to cover all year)

- To evaluate their work both during and at the end of the process.
- To carry out appropriate tests before making any improvements.
- To evaluate their product against the original design specification on how well it meets the needs of the user.
- To evaluate it personally discussing what does and does not work and to seek evaluation from others.

Key vocabulary and understanding for concept connectors

Food: nutritional benefits, nutritional information, food types, packaging, grown, countries, continents, safety, hygiene, procedures.

Sticky Knowledge

- Different foods give different nutritional benefits to allow a healthy and varied diet.
- The nutrition facts label is a label required on most packaged food in many countries, showing what nutrients and other ingredients are in the food.

Key Questions

- Do understand what nutritional benefits different food types give us?
- Do they know where to find the nutritional information on packaging?
- Do they know which foods are grown in different countries and continents?
- Do they know and follow a range of safety and food hygiene procedures?

Famous chef:
Paul Hollywood