Christopher Pickering Primary School

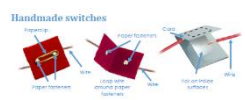
Be the Best you can Be!

Christopher Pickering Design and Technology Long Term Plan 2021-2022

Design and Technology Long Term Plan





The intention for our young Design Technologists
To ensure that all pupils: • use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. • acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. • learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. • evaluate past and present design and technology in order to develop a critical understanding of its impact on daily life and the wider world. • acquire the skills and knowledge to make a contribution to the creativity, culture, wealth and well-being of the nation as design technologists. **Investigate → Focused Practical Task → Design → Make → Evaluate**

Programme of Study

Key Stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to:

Design

- (D1a) design purposeful, functional, appealing products for themselves and other users based on design criteria
- (D1b) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- (M1a) select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- (M1b) select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- (E1a) explore and evaluate a range of existing products
- (E1b) evaluate their ideas and products against design criteria

Technical Knowledge

- (T1a) build structures, exploring how they can be made stronger, stiffer and more stable
- (T1b) explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

Cooking and Nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

- (C1a) use the basic principles of a healthy and varied diet to prepare dishes
- (C1b) understand where food comes from

KS1	Autumn	Spring	Summer
Year 1	**Antarctic Explorers and Expeditions** **Mechanisms – Slides and Levers – Make a Moving Book** • (D1a) design purposeful, functional, appealing products for themselves and other users based on design criteria • (D1b) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • (M1a) select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • (M1b) select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics • (E1a) explore and evaluate a range of existing products • (E1b) evaluate their ideas and products against design criteria	**Enchanted Woodland** **Construction - Make an insect hotel** • (D1a) design purposeful, functional, appealing products for themselves and other users based on design criteria • (D1b) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • (M1a) select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • (M1b) select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics • (E1a) explore and evaluate a range of existing products • (E1b) evaluate their ideas and products against design criteria • (T1a) build structures, exploring how they can be made stronger, stiffer and more stable	**The Seaside** **Food – Make a fruit salad** • (C1a) use the basic principles of a healthy and varied diet to prepare dishes • (C1b) understand where food comes from

Year 2	**The First Moon Landing** **Construction – Make a Moon Buggy** • (D1a) design purposeful, functional, appealing products for themselves and other users based on design criteria • (D1b) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • (M1a) select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • (M1b) select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics • (E1a) explore and evaluate a range of existing products • (E1b) evaluate their ideas and products against design criteria • (T1a) build structures, exploring how they can be made stronger, stiffer and more stable • (T1b) explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products	**Castles, Kings and Queens** **Food – Create food for a Tea Party** • (C1a) use the basic principles of a healthy and varied diet to prepare dishes • (C1b) understand where food comes from	**Explorers of the Sea** **Textiles – Make Pirate Puppets** • (D1a) design purposeful, functional, appealing products for themselves and other users based on design criteria • (D1b) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • (M1a) select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • (M1b) select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics • (E1a) explore and evaluate a range of existing products • (E1b) evaluate their ideas and products against design criteria

Programme of Study

KS2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts; for example, the home, school, leisure, culture, enterprise, industry and the wider environment.

When designing and making, pupils should be taught to:

Design:

- (D2a) 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
- (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make:

- (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- (M2b) 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:

- (E2a) investigate and analyse a range of existing products
- (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- (E2c) understand how key events and individuals in design and technology have helped shape the world

Technical knowledge:

- (T2a) apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- (T2b) understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- (T2c) understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- (T2d) apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition:

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

- (C2a) understand and apply the principles of a healthy and varied diet
- (C2b) prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- (C2c) understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

KS2	Autumn	Spring	Summer
Year 3	**World War 2** **Food – Cook a healthy war-time soup using locally sourced ingredients** • (C2a) understand and apply the principles of a healthy and varied diet • (C2b) prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • (C2c) understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	**Stone, Bronze and Iron Age** **Textiles – Make an Iron Age tunic** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world	**Volcanoes and Earthquakes** **Construction – Earthquake proof buildings** • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world • (T2a) apply their understanding of how to strengthen, stiffen and reinforce more complex structures

Year 4	**Ancient Egypt** **Construction – Make a light-up Egyptian sign for a museum** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world • (T2a) apply their understanding of how to strengthen, stiffen and reinforce more complex structures • (T2c) understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • (T2d) apply their understanding of computing to program, monitor and control their products.	**Romans** **Textiles – Make a Roman coin purse** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world	**Rainforests** **Food – Make cookies using ethically-sourced ingredients that grow in the rainforest** • (C2a) understand and apply the principles of a healthy and varied diet • (C2b) prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • (C2c) understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Year 5	**Ancient Greece** **Textiles – Make a pair of sandals** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world	**Vikings, Anglo Saxons and Scots** **Food – Bake Anglo-Saxon bread** • (C2a) understand and apply the principles of a healthy and varied diet • (C2b) prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • (C2c) understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	**Rivers and The Water Cycle** **Construction – pulley system for getting water out of a well** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world • (T2a) apply their understanding of how to strengthen, stiffen and reinforce more complex structures • (T2b) understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Year 6	**Ancient Mayan Civilization** **Food – Design and make a gift box of handmade chocolate truffles(CAD)** • (C2a) understand and apply the principles of a healthy and varied diet • (C2b) prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • (C2c) understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world	**Crime and Punishment** **Construction – Design and make an alarm system to protect a valuable artefact** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world • (T2a) apply their understanding of how to strengthen, stiffen and reinforce more complex structures • (T2c) understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • (T2d) apply their understanding of computing to program, monitor and control their products.	**Deserts and Third World Countries** **Textiles – upcycle a piece of clothing for a fashion show** • (D2a) 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 • (D2b)generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • (M2a) Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • (M2b) 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 • (E2a) investigate and analyse a range of existing products • (E2b) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • (E2c) understand how key events and individuals in design and technology have helped shape the world

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