



Christopher Pickering Primary School

Be the Best you can Be!

Christopher Pickering Design and Technology Long Term Plan

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 |
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| Year 1 | <p><u>Antarctic Explorers and Expeditions</u></p> <p>Mechanisms – Slides and Levers – Make a Moving Book</p> <ul style="list-style-type: none"> • (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 | <p><u>Enchanted Woodland</u></p> <p>Construction - Make an insect hotel</p> <ul style="list-style-type: none"> • (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 | <p><u>The Seaside</u></p> <p>Food – Make a fruit salad</p> <ul style="list-style-type: none"> • (C1a) use the basic principles of a healthy and varied diet to prepare dishes • (C1b) understand where food comes from |



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| <p>Year 2</p> | <p><u>The First Moon Landing</u></p> <p>Construction – Make a Moon Buggy</p> <ul style="list-style-type: none"> • (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 | <p><u>Castles, Kings and Queens</u></p> <p>Food – Create food for a Tea Party</p> <ul style="list-style-type: none"> • (C1a) use the basic principles of a healthy and varied diet to prepare dishes • (C1b) understand where food comes from | <p><u>Explorers of the Sea</u></p> <p>Textiles – Make Pirate Puppets</p> <ul style="list-style-type: none"> • (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 |



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| | <ul style="list-style-type: none"> (T1b) explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products | | |
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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 |
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| Year 3 | <p><u>World War 2</u></p> <p>Food – Cook a healthy war-time soup using locally sourced ingredients</p> <ul style="list-style-type: none"> • (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. | <p><u>Stone, Bronze and Iron Age</u></p> <p>Textiles – Make an Iron Age tunic</p> <ul style="list-style-type: none"> • (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 | <p><u>Volcanoes and Earthquakes</u></p> <p>Construction – Earthquake proof buildings</p> <ul style="list-style-type: none"> • (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 |



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| Year 4 | <p><u>Ancient Egypt</u></p> <p>Construction – Make a light-up sign for display in a museum</p> <ul style="list-style-type: none"> • (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 | <p><u>Romans</u></p> <p>Textiles – Make a Roman coin purse</p> <ul style="list-style-type: none"> • (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 | <p><u>Rainforests</u></p> <p>Food – Make cookies using ethically-sourced ingredients that grow in the rainforest</p> <ul style="list-style-type: none"> • (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. |



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| <p>Year 5</p> | <p><u>Ancient Greece</u></p> <p>Textiles – Make a pair of sandals</p> <ul style="list-style-type: none"> • (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 | <p><u>Vikings, Anglo Saxons and Scots</u></p> <p>Food – Bake Anglo-Saxon bread</p> <ul style="list-style-type: none"> • (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. | <p><u>Rivers and The Water Cycle</u></p> <p>Construction – pulley system for getting water out of a well</p> <ul style="list-style-type: none"> • (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 |



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| Year 6 | <p><u>Ancient Mayan Civilization</u></p> <p>Food – Design and make a gift box of handmade chocolate truffles</p> <ul style="list-style-type: none"> (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 | <p><u>Crime and Punishment</u></p> <p>Construction – Design and make an alarm system to protect a valuable artefact</p> <ul style="list-style-type: none"> (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 | <p><u>Deserts and Third World Countries</u></p> <p>Textiles – upcycle a piece of clothing for a fashion show</p> <ul style="list-style-type: none"> (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 |

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