
'That they may have life, life in all its fullness' John 10:10

## Design and Technology

We encourage children to use their 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.

Design and Technology is an inspiring and practical subject. It can be found in many of the objects children use each day and is a part of children's immediate experiences.

Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team.

Our Design and Technology curriculum combines skills, knowledge, concepts and values to enable children to tackle real problems. It can improve analysis, problem solving, practical capability and evaluation skills. We aim to, wherever possible, link work to other areas such as mathematics, science, computing and art.

The children are encouraged to become innovators and risk-takers. High quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

## Subject Specific Progression Design and Technology <br> Years 1 and 2

## Unit: Design

The children should:

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

## Both Year Groups

a. use their knowledge of existing products and their own experience to help generate their ideas
b. design products that have a purpose and are aimed at an intended user
c. explain how their products will look and work through talking and simple annotated drawings
d. design models using simple computing software; e plan and test ideas using templates and mock-ups; f understand and follow simple design criteria; work in a range of relevant contexts, for example imaginary, storybased, home, school and the wider environment

Projects will be the same for both year groups following a 2-year rolling program.

## Unit: Making

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 making.
Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].
They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
Children can:
Planning

- with support, follow a simple plan or recipe
- begin to select from a range of hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer
- select from a range of materials, textiles and components according to their characteristics

| Year 1 | Year 2 |
| :---: | :---: |
| Practical skills and techniques | Practical skills and techniques |
| • begin to learn how to use hand <br> tools and kitchen equipment safely | - with increasing confidence use <br> hand tools and kitchen equipment |


| and appropriately and learn to follow hygiene procedures <br> - develop the use and range of materials and components, including textiles and food ingredients <br> - with help, measure and mark out <br> - cut, shape and score materials with some accuracy <br> - assemble, join and combine materials, components or ingredients with help <br> - demonstrate how to cut, shape and join fabric to make a simple product with some help <br> - manipulate fabrics in simple ways to create the desired effect with help <br> - use a basic running stitch with adult help <br> - cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups with adult help <br> - begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations. | safely and appropriately and learn to follow hygiene procedures <br> - use and range of materials and components, including textiles and food ingredients competently <br> - measure and mark out with increasing accuracy <br> - cut, shape and score materials accurately <br> - assemble, join and combine materials, components or ingredients <br> - demonstrate how to cut, shape and join fabric to make a simple product <br> - manipulate fabrics in simple ways to create the desired effect <br> - use a basic running stitch independently <br> - cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups <br> - use simple finishing techniques to improve the appearance of their product, such as adding simple decorations. |
| :---: | :---: |
| Unit: Evaluation <br> 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. Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria. Children can: |  |
| Year 1 | Year 2 |
| - explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations <br> - explain positives and things to improve for existing products <br> - explore what materials products are made from | - explore and evaluate existing products mainly through discussions, comparisons and a written evaluation <br> - explain positives and things to improve for existing products and write about them |



## Children can:

- begin to explain where in the world different foods originate from
- develop an understanding that all food comes from plants or animals
- start to understand that food has to be farmed, grown elsewhere (e.g. home) or caught - name and sort foods into the five groups in the Eatwell Guide with guidance
- begin to understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why - use what they know about the Eatwell Guide to design and prepare dishes with increasing understanding
- explain where in the world different foods originate from - understand that all food comes from plants or animals
- understand that food has to be farmed, grown elsewhere (e.g. home) or caught
- name and sort foods into the five groups in the Eatwell Guide - understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why
- use what they know about the Eatwell Guide to design and prepare dishes.


# Subject Specific Progression Design and Technology <br> <br> Years 3 and 4 

 <br> <br> Years 3 and 4}

## Unit: Design

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.
They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.
Children can:

- identify the design features of their products that will appeal to intended customers
- use their knowledge of a broad range of existing products to help generate their ideas
- design innovative and appealing products that have a clear purpose and are aimed at a specific user
- explain how particular parts of their products work
- use annotated sketches and cross-sectional drawings to develop and communicate their ideas
- when designing, explore different initial ideas before coming up with a final design
- when planning, start to explain their choice of materials and components including function and aesthetics
- test ideas out through using prototypes
- use computer-aided design to develop and communicate their ideas
- develop and follow simple design criteria
- work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.
Projects will be the same for both year groups following a 2-year rolling program.


## Unit: Make

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 making.
Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. They 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.

| Year 3 | Year 4 |
| :--- | :--- |
| Children can: | Children can: |
| Plan | Plan |

- with growing confidence, carefully select from a range of tools and equipment, explaining their choices
- With help select from a range of materials and components according to their functional properties and aesthetic qualities
- Begin to place the main stages of making in a systematic order
Practical skills and techniques
- learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures
- use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components with guidance
- with growing independence, measure and mark out to the nearest cm and millimetre
- cut, shape and score materials with some degree of accuracy
- assemble, join and combine material and components with some degree of accuracy
- demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product
- join textiles with an appropriate sewing technique with some accuracy
- begin to select and use
different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics.


## Unit: Evaluation

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. Children investigate and analyse a range of existing products.

They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. The children will write an evaluation.

\section*{| Year 3 | Year 4 |
| :--- | :--- |}

Children can:

- explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose
- explore what materials/ingredients products are made from and suggest reasons for this
- consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product
- evaluate their product against their original design criteria - evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.

Children can:

- explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose and be able to write a report with examples
- explore what
materials/ingredients products are made from and suggest reasons for this and suggest alternatives
- consider their design criteria as they make progress and are willing to alter their plans, considering the views of others if this helps them to improve their product
- evaluate their product against their original design criteria and suggest improvements
- evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world explain why they are so important.


## Unit: Technical Knowledge

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

| Year 3 | Year 4 |
| :---: | :---: |
| Children can: | Children can: |


| - begin to understand that materials have both functional properties and aesthetic qualities <br> - with adult assistance apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products <br> - with adult input develop their understand and demonstrate how mechanical and electrical systems have an input and output process <br> - make and represent simple electrical circuits, such as a series and parallel, and components to create functional products <br> - with discussion explain how mechanical systems such as levers and linkages create movement <br> - use mechanical systems in their products. | - understand that materials have both functional properties and aesthetic qualities <br> - apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products <br> - understand and demonstrate how mechanical and electrical systems have an input and output process <br> - make and represent electrical circuits, such as a series and parallel, and components to create functional products <br> - explain how mechanical systems such as levers and linkages create movement <br> - independently use mechanical systems in their products. |
| :---: | :---: |
| Unit : Cooking and Nutrition <br> Children understand and apply the principles of a healthy and varied diet.They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. They understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. |  |
| Year 3 | Year 4 |
| Children can: <br> - begin to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world <br> - develop an understanding of how to prepare and cook a variety of predominantly savoury dishes safely and hygienically <br> - with adult guidance and support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven <br> - use an increasing range of techniques such as mashing, | Children can: <br> - start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world <br> - understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically <br> - with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven <br> - use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking |

whisking, crushing, grating, cutting, kneading and baking

- Explain with increasing confidence that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes
- with a developing understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body
- prepare ingredients using appropriate cooking utensils with increasing knowledge
- measure and weigh ingredients to the nearest with increasing accuracy gram and millilitre
- start to independently follow a recipe;
- start to understand seasonality.
- explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes
- understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body
- prepare ingredients using appropriate cooking utensils
- measure and weigh ingredients to the nearest gram and millilitre
- start to independently follow a recipe;
- start to understand seasonality.


# Subject Specific Progression Design and Technology Years 5 and 6 

## Unit: Design

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. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.
Projects will be the same for both year groups following a 2-year rolling program.
Year 5 Year 6

Children can:

- use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market
- use their developing knowledge of a broad range of existing products to help generate their ideas
- design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user
- With adult help explain how particular parts of their products
- use annotated sketches, crosssectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas simply
- generate a range of simple design ideas and clearly communicate final designs
- begin to consider the availability and costings of

Children can:

- use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market
- use their knowledge of a broad range of existing products to help generate their ideas
- design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user in an independent manner
- explain how particular parts of their products work
- use annotated sketches, crosssectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas
- generate a range of design ideas and clearly communicate final designs
- consider the availability and costings of resources when planning out designs

| resources when planning out |
| :--- |
| designs |
| - work in a broad range |
| of relevant contexts, for example |
| conservation, the home, school, |
| leisure, culture, enterprise, |
| industry and the wider |
| environment. |

- work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.


## Unit: Make

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 making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. They 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.

| Year 5 | Year 6 |
| :--- | :--- |
| Children can: | Children c |

Planning

- plan by suggesting what to do next in a group or with an adult
- with growing confidence, select from a wide range of tools and equipment, explaining their choices
- select from a range of materials and components according to their functional properties and aesthetic qualities with some suggestions from others
- create step-by-step plans as a guide to making
Practical skills and techniques
- develop a knowledge
of how to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures
- develop their take exact measurements and mark out, to within 1 millimetre
- use an increasing range of materials and components, including construction materials and kits, textiles, and mechanical components

Children can: Planning

- independently plan by suggesting what to do next - confidently select from a wide range of tools and equipment, explaining their choices
- select from a range of materials and components according to their functional properties and aesthetic qualities
- independently create step-bystep plans as a guide to making Practical skills and techniques
- learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures
- independently take exact measurements and mark out, to within 1 millimetre
- use a full range of materials and components, including construction materials and kits, textiles, and mechanical components
- cut a range of materials with precision and accuracy
- shape and score materials with precision and accuracy
• cut a range of materials with
increasing precision and accuracy
- shape and score materials with
increasing precision and accuracy
- assemble, join and combine
materials and components
with developing accuracy
- demonstrate how to measure,
make a seam allowance, tape, pin,
cut, shape and join fabric with
precision to make increasingly
complex product
- join textiles using a greater
variety of stitches, such as
backstitch, whip stitch, blanket
stitch
- refine the finish using
techniques to improve the
appearance of their product, such
as sanding or a more precise
scissor cut after roughly cutting
out a shape with increasing skill


## Unit: Evaluation

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

| Year 5 | Year 6 |
| :---: | :---: |
| Children can: <br> - complete detailed competitor analysis of other products on the market, with guidance <br> - critically evaluate, with guidance, the quality of design, manufacture and fitness for purpose of products as they design and make <br> - evaluate their ideas and products against the original design criteria, making changes as needed | Children can: <br> - complete detailed competitor analysis of other products on the market <br> - critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make <br> - independently evaluate their ideas and products against the original design criteria, making changes as needed |
| Unit: Technical Knowledge |  |
| Children apply their understanding of how complex structures. They understand and use | engthen, stiffen and reinforce more chanical systems in their products [for |

example, gears, pulleys, cams, levers and linkages].They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].They apply their understanding of computing to program, monitor and control their products.

| Year 5 | Year 6 |
| :---: | ---: |
| Children can: | Childr |

- apply their developing understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products
- understand and demonstrate that mechanical and electrical systems have an input, process and output with guidance - Develop their explanations of how mechanical systems, such as cams, create movement and use mechanical systems in their products
- apply their increasing understanding of computing to program, monitor and control a product

Children can:

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products - understand and demonstrate that mechanical and electrical systems have an input, process and output
- explain how mechanical systems, such as cams, create movement and use mechanical systems in their products
- apply their understanding of computing to program, monitor and control a product


## Unit: Cooking and nutrition

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

| Year 5 | Year 6 |
| :---: | :---: |
| Children can: <br> - know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world with increasing understanding <br> - develop their understanding about seasonality, how this may affect the food availability and plan recipes according to seasonality - with guidance understand that food is processed into ingredients that can be eaten or used in cooking | Children can: <br> - know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world <br> - understand about seasonality, how this may affect the food availability and plan recipes according to seasonality <br> - understand that food is processed into ingredients that can be eaten or used in cooking <br> - demonstrate how to prepare and cook a variety of |

- demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including,
where appropriate, the use of a heat source with developing
understanding
- With increasing skill demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling
- With developing knowledge explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes
- begin adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma
- alter methods, cooking times and/or temperatures with greater confidence
- measure accurately and calculate ratios of ingredients to scale up or down from a recipe
- independently follow a recipe.
predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source - demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling - explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes - adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma
- alter methods, cooking times and/or temperatures;
- measure accurately and calculate ratios of ingredients to scale up or down from a recipe
- independently follow a recipe.

