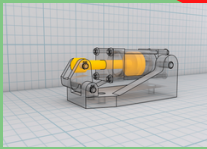


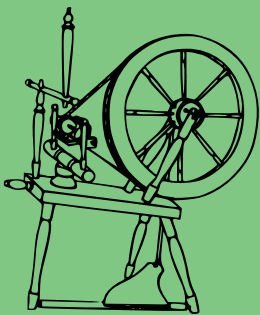
# Design & Technology

## Curriculum Path of

## Progression



In Y5, pupils begin by consolidating their understanding of structures, by learning how to build a truss bridge. Pupils will explore strengthening and reinforcing techniques, as well as building and evaluating a truss bridge. Following this, pupils will continue to develop and enhance their design skills, but within the digital world, learning how to program an animal monitor, to monitor ambient temperature, as well as generating a micro:bit case and being to learn how to use 3D CAD design skills. Finally, pupils will develop their understanding of mechanisms, as they design a pop-up book. Pupils will follow a design brief, using layers and spacers, to create a high-quality product suitable for a target user.



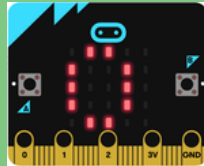
In Y3, pupils will begin by learning about eating seasonally, in cooking and nutrition. Pupils will explore foods from around the world and how the climate affects food growth, as well as taking a closer look at seasonal foods in the UK and making Rainbow food and using a recipe to make a tart. Following this, pupils will develop their textiles skills, through making a cushion. Pupils will learn how to design a product, sew cross-stitch and applique, as well as decorating fabric and assembling a cushion. Finally, pupils will structures, whilst learning how to construct a castle, using multiple shapes (2D and 3D), as well as 3D nets. Following this, pupils will use evaluating skills to evaluate their final product.



Y6



Y5



Y4



Y3



In Y6, pupils will consolidate their learning, by consolidating their learning of textiles, by designing a waistcoat.

Pupils will learn how to design a waistcoat, marking and cutting fabric according to a design, as well as assembling and decorating a waistcoat. Following this, pupils will enhance their knowledge of the digital world, by writing a design brief based on a client request, writing a program to include multiple functions, as well as developing a sustainable product concept, using the help of 3D CAD skills. Finally, pupils will combine all their learnt skills on cooking and nutrition, to research and design a three-course meal, as well as understanding where their food comes from. Following this, pupils will prepare a recipe and then cook a meal based on this recipe.



In Y4, pupils will begin by learning how to build and construct mechanisms and ultimately make a slingshot car. Pupils will build a car chassis and launch mechanism, designing a shape that reduces air resistance, then they will assemble a model based on their design. Following this, pupils will continue to develop their design skills, by first learning about electrical items and how they work, then applying their knowledge to designing and constructing a torch. Finally, pupils will continue to develop their understanding of food, cooking and nutrition, by learning the art of baking. Pupils will follow a baking recipe, before making a prototype and then designing and baking a biscuit.





## Autumn Term – Cooking and Nutrition (Eating seasonally)

### National Curriculum Coverage

- understand where food comes from.
- understand and apply the principles of a healthy and varied diet

### Coverage

- **To know that climate affects food growth**
- **To understand the advantages of eating seasonal foods grown in the UK**
- **To create a recipe that is healthy and nutritious using seasonal vegetables**
- **To safely follow a recipe when cooking**

Pupils will begin by learning about eating seasonally, in cooking and nutrition. Pupils will explore foods from around the world and how the climate affects food growth, as well as taking a closer look at seasonal foods in the UK and making Rainbow food and using a recipe to make a tart.

### Progression pathway

This unit builds upon prior knowledge and skills gained in KS1 in which pupils were taught the skills needed to engage in an iterative process of designing and making.

They build upon those skills this half term by learning about eating seasonally. Pupils explore how the climate affects food growth, as well as making Rainbow food and using a recipe to make a tart.

This will lead on to developing further design, creative and technological skills in Year 4.

## Spring Term – Textiles (Making a cushion)

### National Curriculum Coverage

- 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 textiles and ingredients, according to their functional properties and aesthetic qualities

### Coverage

- **To learn how to sew cross-stitch and appliqué**
- **To design a product and its template**
- **To decorate fabric using appliqué and cross stitch**
- **To assemble your cushion**

Throughout this unit, pupils will develop their textiles skills, through making a cushion. Pupils will learn how to design a product, sew cross-stitch and applique, as well as decorating fabric and assembling a cushion.

### Progression pathway

This unit builds upon prior knowledge and skills gained in KS1 in which pupils were taught the skills needed to engage in an iterative process of designing and making.

They build upon those skills this half term by developing their textiles skills. Pupils will learn how to design a product, sew cross-stitch and applique, as well as decorating fabric and assembling a cushion.

This will lead on to developing further design, creative and technological skills in Year 4.



## Summer Term – Structures (Constructing a castle)

### National Curriculum Coverage

- 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

### Coverage

- **To recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure.**
- **To design a castle**
- **To construct 3D nets**
- **To construct and evaluate my final product**

During this unit, pupils will explore structures, whilst learning how to construct a castle, using multiple shapes (2D and 3D), as well as 3D nets. Following this, pupils will use evaluating skills to evaluate their final product.

### Progression pathway

This unit builds upon prior knowledge and skills gained in KS1 in which pupils were taught the skills needed to engage in an iterative process of designing and making.

They build upon those skills this half term by exploring structures, whilst learning how to construct a castle, using multiple shapes, as well as 3D nets. Following this, pupils will use evaluating skills to evaluate their final product.

This will lead on to developing further design, creative and technological skills in Year 4.



### Autumn Term – Mechanisms (Making a Slingshot Car)

#### National Curriculum

##### Coverage

- 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 textiles and ingredients, according to their functional properties and aesthetic qualities

#### Coverage

- **To build a car chassis**
- **To design a shape that reduces air resistance**
- **To make a model based on a chosen design**
- **To assemble and test my completed product**

During this unit, pupils will learn how to build and construct mechanisms and ultimately make a slingshot car. Pupils will build a car chassis and launch mechanism, designing a shape that reduces air resistance, then they will assemble a model based on their design.

#### Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt to design a product and construct their design.

They build upon those skills this half term by learning how to build and construct mechanisms and ultimately make a slingshot car.

This will lead on to a greater depth of knowledge of structures and mechanisms, as well as an introduction to the digital world in Year 5.

### Spring Term – Electrical Systems

#### National Curriculum

##### Coverage

- 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.

#### Coverage

- **To learn about electrical items and how they work**
- **To analyse and evaluate electrical products**
- **To design a product to fit a set of specific user needs**
- **To make and evaluate a torch**

Throughout this unit, pupils will continue to develop their design skills, by first learning about electrical items and how they work, then applying their knowledge to designing and constructing a torch.

#### Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt to design a product and construct their design.

They build upon those skills this half term by continuing to develop their design skills, by first learning about electrical items and how they work, then applying their knowledge to designing and constructing a torch.

This will lead on to a greater depth of knowledge of structures and mechanisms, as well as an introduction to the digital world in Year 5.



## Summer Term – Food

### National Curriculum Coverage

- 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

### Coverage

- **To follow a baking recipe**
- **To make and test a prototype**
- **To design a biscuit to a given budget**
- **To make a biscuit that meets a given design brief**

During this unit, pupils will continue to develop their understanding of food, cooking and nutrition, by learning the art of baking. Pupils will follow a baking recipe, before making a prototype and then designing and baking a biscuit.

### Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt to design a product and construct their design.

They build upon those skills this half term by continuing to develop their understanding of food, cooking and nutrition, by learning the art of baking. Pupils will follow a baking recipe, before making a prototype and then designing and baking a biscuit.

This will lead on to a greater depth of knowledge of structures and mechanisms, as well as an introduction to the digital world in Year 5.



## Autumn Term – Structures

### National Curriculum Coverage

- 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

### Coverage

- **To explore how to reinforce a beam (structure) to improve its strength**
- **To build a spaghetti truss bridge**
- **To build a wooden truss bridge**
- **To complete, reinforce and evaluate my truss bridge.**

During this unit, pupils will consolidate their understanding of structures, by learning how to build a truss bridge. Pupils will explore strengthening and reinforcing techniques, as well as building and evaluating a truss bridge.

### Progression pathway

This unit builds upon prior knowledge gained in a Year 4, in which pupils explored how to design purposeful, functional, appealing products for themselves and other users based on design criteria

They build upon those skills this half term by consolidating their understanding of structures, by learning how to build a truss bridge. Pupils will explore strengthening and reinforcing techniques, as well as building and evaluating a truss bridge.

This will lead on to a deeper understanding and skill level of constructing and evaluating product design in Year 6.

## Spring Term – Digital world

### National Curriculum Coverage

- 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 and exploded diagrams, prototypes and computer-aided design

### Coverage

- **To carry out research to develop design criteria**
- **To write a program to monitor the ambient temperature including an alert**
- **To generate creative and unique micro:bit case, stand and/or housing ideas**
- **To learn about and practise 3D CAD skills**

Throughout this unit, pupils will continue to develop and enhance their design skills, but within the digital world, learning how to program an animal monitor, to monitor ambient temperature, as well as generating a micro:bit case and being to learn how to use 3D CAD design skills.

### Progression pathway

This unit builds upon prior knowledge gained in a Year 4, in which pupils explored how to design purposeful, functional, appealing products for themselves and other users based on design criteria

They build upon those skills this half term by consolidating their design skills, by learning how to program an animal monitor, to monitor ambient temperature, as well as generating a micro:bit case and being to learn how to use 3D CAD design skills.

This will lead on to a deeper understanding and skill level of constructing and evaluating product design in Year 6.



## Summer Term – Mechanisms

### National Curriculum Coverage

- 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 textiles and ingredients, according to their functional properties and aesthetic qualities

### Coverage

- **To design a pop-up book**
- **To follow my design brief to make my pop up book**
- **To use layers and spacers to cover the working of mechanisms**
- **To create a high-quality product suitable for a target user**

Throughout this unit, pupils will develop their understanding of mechanisms, as they design a pop-up book. Pupils will follow a design brief, using layers and spacers, to create a high-quality product suitable for a target user.

### Progression pathway

This unit builds upon prior knowledge gained in a Year 4, in which pupils explored how to design purposeful, functional, appealing products for themselves and other users based on design criteria

They build upon those skills this half term by consolidating their understanding of mechanisms, as they design a pop-up book. Pupils will follow a design brief, using layers and spacers, to create a high-quality product suitable for a target user.

This will lead on to a deeper understanding and skill level of constructing and evaluating product design in Year 6.





## Autumn Term – Textiles

### National Curriculum Coverage

- 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 textiles and ingredients, according to their functional properties and aesthetic qualities

### Coverage

- **To design a waistcoat**
- **To mark and cut fabric according to a design**
- **To assemble a waistcoat**
- **To decorate your waistcoat**

During this unit, pupils will consolidate their learning of textiles, by designing a waistcoat. Pupils will learn how to design a waistcoat, marking and cutting fabric according to a design, as well as assembling and decorating a waistcoat.

### Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils developed their design, construction and evaluation skills.

They build upon those skills this half term by exploring rhythmic patterns in order to build a sense of pulse and using this understanding to create a composition.

This will lead on to developing a creative design mindset and the skills and knowledge to continue development in design and technology.

## Spring Term – Digital world

### National Curriculum Coverage

- 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 and exploded diagrams, prototypes and computer-aided design

### Coverage

- **To write a design brief and criteria based on a client request**
- **To write a program to include multiple functions as part of a navigation device**
- **To develop a sustainable product concept**
- **To develop 3D CAD skills to produce a virtual model**

Throughout this unit, pupils will enhance their knowledge of the digital world, by writing a design brief based on a client request, writing a program to include multiple functions, as well as developing a sustainable product concept, using the help of 3D CAD skills.

### Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils developed their design, construction and evaluation skills.

They build upon those skills this half term by writing a design brief based on a client request, writing a program to include multiple functions, as well as developing a sustainable product concept, using the help of 3D CAD skills.

This will lead on to developing a creative design mindset and the skills and knowledge to continue development in design and technology.





### Summer Term – Food

#### National Curriculum Coverage

- 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.

#### Coverage

- **To research and design a three-course meal**
- **To prepare a meal using a recipe**
- **To understand where their food comes from**
- **To write up a recipe**
- **To prepare a meal using a recipe**

During this unit, pupils will combine all their learnt skills on cooking and nutrition, to research and design a three-course meal, as well as understanding where their food comes from. Following this, pupils will prepare a recipe and then cook a meal based on this recipe.

#### Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils developed their design, construction and evaluation skills.

They build upon those skills this half term by combining all their learnt skills on cooking and nutrition, to research and design a three-course meal, as well as understanding where their food comes from.

This will lead on to developing a creative design mindset and the skills and knowledge to continue development in design and technology.