



# ST AIDAN'S

CATHOLIC PRIMARY SCHOOL

Learning and growing together, inspired by the love of Jesus

# Design Technology

**All Key Stage 1 lessons are planned and sequenced according to the National Curriculum:**

### **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**

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

#### **Make**

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

#### **Evaluate**

- Explore and evaluate a range of existing products
- Evaluate their ideas and products against design criteria

#### **Technical knowledge**

- Build structures, exploring how they can be made stronger, stiffer and more stable
- 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.

Pupils should be taught to:

#### **Key stage 1**

- Use the basic principles of a healthy and varied diet to prepare dishes
- Understand where food comes from.

# Year 1

- Making Vehicles
- Levers and Sliders - Moving Pictures
- Healthy Sandwiches

# Making Vehicles

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate current vehicles, identifying likes and dislikes and beginning to understand what they are for, how they work and who might use them
<u>2</u>	To experiment and practise making a model axle
<u>3</u>	To use prior research and own ideas to design a vehicle through talk and drawings
<u>4</u>	To make a vehicle containing an axle
<u>5</u>	To evaluate vehicle against design criteria, identifying strengths and possible changes

### Key vocabulary

Vehicles, likes/dislikes, design, purpose, features, axle, movement, materials, equipment, cutting, joining, evaluate, suitable, test, strong, weak, changes.

# Moving Pictures

### **Sequence of lessons**

<b><u>Lesson</u></b>	<b><u>Objective</u></b>
<b><u>1</u></b>	To explore and evaluate current moving pictures, identifying likes and dislikes and beginning to understand what they are for, how they work and who might use them
<b><u>2</u></b>	To experiment and practise making levers
<b><u>3</u></b>	To use prior knowledge and own ideas to design a moving picture through talk and drawings
<b><u>4</u></b>	To make a moving picture containing a lever
<b><u>5</u></b>	To evaluate moving picture against design criteria, identifying strengths and possible changes

### **Key vocabulary**

Moving pictures, likes/dislikes, design, purpose, features, lever, pull, push, movement, materials, equipment, cutting, joining, evaluate, suitable, test, strong, weak, changes.

# Healthy Sandwiches

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To taste and evaluate different types of bread, thinking of contained ingredients, identifying likes and dislikes
<u>2</u>	To explore ingredients needed to make bread, find out where they come from and how they are made
<u>3</u>	To use prior knowledge and own ideas to design a healthy sandwich through talk and drawings
<u>4</u>	To prepare and bake bread by mixing and kneading ingredients. To assemble healthy sandwich by cutting fillings and bread
<u>5</u>	To evaluate sandwich against design criteria, identifying strengths and possible changes

### Key vocabulary

Bread, likes/dislikes, ingredients, cutting, diet, healthy, popular, seed, growing, slicing, names of equipment and utensils, sensory vocabulary, test, taste, changes.

# Year 2

Towers and Structures

Animal Puppets

Healthy Picnic Snacks

# Towers and Structures

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate at a range of existing towers explaining likes/dislikes and why
<u>2</u>	To plan a tower of one metre through talk and drawings. To make a mock up tower and evaluate, identifying strengths and possible changes
<u>3</u>	To explore and evaluate current stable towers, explaining likes/dislikes and why. To begin to develop their tower design ideas through discussion, observation, drawing and modelling
<u>4</u>	To build a tower that is stable up to 1 meter tall
<u>5</u>	To evaluate tower against design criteria, identifying strengths and possible changes

### Key vocabulary

Towers, likes/dislikes, design, purpose, materials, measure, stable, straight, structure, equipment, joining, 3D shape names, base, evaluate, suitable, test, strong, weak, changes.

# Animal Puppets

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate at a range of existing puppets explaining likes/dislikes and why
<u>2</u>	To design puppet through talk, drawings and labelled parts
<u>3</u>	To select, cut and shape fabric to begin making puppet
<u>4</u>	To practise basic sewing techniques. To join fabric together using practised techniques
<u>5</u>	To evaluate puppet against design criteria, identifying strengths and possible changes

### Key vocabulary

Puppets, likes/dislikes, design, purpose, features, materials, fabrics, equipment, mark out, cutting, joining, evaluate, suitable, test, strong, weak, changes.

# Healthy Picnic Snacks

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To taste and evaluate a range of healthy snacks, identifying likes and dislikes
<u>2</u>	To explore ingredients needed to make healthy snacks, finding out where they come from and how they are made
<u>3</u>	To design healthy snacks through talk, drawings and labelled parts. To use online shops to create a shopping list
<u>4</u>	To prepare healthy snacks through a range of techniques such as cutting, peeling and grating, ready for eating or for adult to cook
<u>5</u>	To evaluate healthy snacks against design criteria, identifying strengths and possible changes

### Key vocabulary

Healthy, snacks, likes/dislikes, ingredients, cutting, diet, healthy, popular, seed, growing, slicing, names of fruit and vegetables, names of equipment and utensils, sensory vocabulary, test, taste, changes.

**All Key Stage 2 lessons are planned and sequenced according to the National Curriculum:**

**Key Stage 2:**

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**

- 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

**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.

**Key stage 2:**

- 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.

# Year 3

Christmas Biscuits

Pulleys and Levers

Complex Structures

# Christmas Biscuits

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To taste and evaluate a range of biscuits, identifying likes and dislikes and considering the views of others
<u>2</u>	To explore the ingredients needed to make biscuits and find out where they come from and how they are made
<u>3</u>	To plan a biscuit design by drawing and labelling and identifying a criteria for a successful product
<u>4</u>	To make biscuits through a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
<u>5</u>	To evaluate biscuits against design criteria, considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

Biscuits, ingredients, flavour, consistency, preference, balanced diet, knead, mix, grown, combine, mixture, roll out, shape, stir, sprinkle, name of products, names of equipment/utensils, taste, evaluate, improvements.

# Pulleys and Levers

### **Sequence of lessons**

Lesson	Objective
1	To explore and evaluate inventors/designers/engineers who have developed pulley and lever designs, understanding how well products have been designed, made, what materials have been used and the construction technique
2	To experiment with tools and techniques used to create a pulley and lever design understanding that they create movement
3	To plan a simple pulley and lever design by drawing, labelling and identifying a criteria for a successful product
4	To work safely with equipment to make pulley and lever design
5	To evaluate design against design criteria, considering others viewpoints on how to improve them
6	

### **Key vocabulary**

Pulley and levers, products, designed, construction, materials, purpose, control, process, input, output, evaluate, test, improvements.

Pyramids

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and appreciate the Pyramids of Egypt as a monumental design in history, understanding how well they have been designed, made, what materials have been used and the construction technique
<u>2</u>	To experiment with a range of construction kits to build a pyramid, making changes to improve design as they build
<u>3</u>	To plan a pyramid by drawing, labelling and identifying a criteria for a successful product
<u>4</u>	To work safely with equipment to make a pyramid
<u>5</u>	To evaluate design against design criteria, considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

Pyramids, Egypt, materials, construction, frame structure, build, join, shape, stability, strengthen, triangulation, measure, evaluate, test, improvements.

# Year 4

Christmas Lights

Let's Fly a Kite

Monsters

Christmas Lights

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate current light up cards, understanding how well products have been designed, made, what materials have been used and the construction technique
<u>2</u>	To experiment with making simple electrical circuits linking scientific knowledge, to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a light up Christmas card electrical circuit design by confidently making labelled drawings from different views showing specific features, explaining their choice of materials and components according to function. To identify a criteria for a successful product.
<u>4</u>	To work safely with equipment to make a light up Christmas card, understanding how more complex electrical circuits and components can be used to create functional products
<u>5</u>	To evaluate electrical circuit design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

Electrical circuits, purpose, materials, electrical appliance, device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/ connections, loose connection, short circuit, crocodile clip, copper wire, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, test, evaluate, improvements.

Let's Go Fly a Kite

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate kite designs throughout history and current kites, understanding how well products have been designed, made, what materials have been used and the construction technique
<u>2</u>	To experiment with materials and techniques to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a kite design by confidently making labelled drawings from different views showing specific features, explaining their choice of materials and components according to function. To identify a criteria for a successful product.
<u>4</u>	To work safely with equipment to make a kite, measuring, marking out, cutting, shaping, combining and joining materials with accuracy
<u>5</u>	To evaluate kite design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

Kite, sail, rokkaku, join, bridle, sled, line, fly, stiffen, tow point, diamond, structure, test, spars, delta, frame, tail, weight, light, heavy

Monsters

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate current monster textile designs understanding how well products have been designed, made, what materials have been used and the construction technique
<u>2</u>	To experiment with different fabric and stitching techniques; to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a monster design by confidently making labelled drawings from different views showing specific features, explaining their choice of materials and components according to function. To identify a criteria for a successful product.
<u>4</u>	To work safely with equipment to make a monster, measuring, taping or pinning, cutting and joining fabric with some accuracy
<u>5</u>	To evaluate monster design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

monster, purpose, materials, fit for purpose, fabric, fastenings, names of equipment, stitch, strength, structure, evaluate, test, improvements

# Year 5

Tudor Purse

Musical Instruments

Moving Toys

Tudor Purses

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate the different types of pouches and purses during Tudor times, understanding how well products have been designed, made, what materials have been used and construction technique
<u>2</u>	To begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose
<u>3</u>	To experiment with different fabric and stitching techniques to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>4</u>	To plan a Tudor Purse design through discussion, annotated sketches, prototypes, and pattern pieces, explaining their choice of materials and components according to function and aesthetic. To identify a criteria for a successful product.
<u>5</u>	To work safely and accurately with equipment to make a Tudor purse, using finishing techniques to strengthen and improve the appearance, ensuring a good quality finish
<u>6</u>	To evaluate Tudor purse design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them

### Key vocabulary

Tudor, purse, pouch, purpose, materials, fit for purpose, fabric, fastenings, hem, names of equipment, stitch, strength, structure, evaluate, test, improvements.

# Musical Instruments

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate a range of musical instruments considering inventors/designers/engineers/ who have developed musical instruments, understanding how well products have been designed, made, what materials have been used and the construction technique
<u>2</u>	To experiment with making sounds using different materials and techniques, to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a musical instrument design through discussion, annotated sketches, prototypes, cross-sectional and exploded diagrams, explaining their choice of materials and components according to function and aesthetic. To identify a criteria for a successful product.
<u>4</u>	To work safely and accurately with equipment to make a musical instrument, using finishing techniques to strengthen and improve the appearance, ensuring a good quality finish
<u>5</u>	To evaluate musical instrument design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

Musical instrument names, purpose, material, sound, assemble, marking out, join, shape, stability, frame structure, shell structure, evaluate, test, improvements.

# Moving Toys

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate a range of moving toys considering inventors/designers who have developed moving toys, understanding how well products have been designed, made, what materials have been used and the construction technique
<u>2</u>	To investigate and experiment with basic cams, pulleys and gear systems to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a moving toy design through discussion, annotated sketches, prototypes, cross-sectional and exploded diagrams, explaining their choice of materials and components according to function and aesthetic. To identify a criteria for a successful product.
<u>4</u>	To work safely and accurately with equipment to make a moving toy, using finishing techniques to strengthen and improve the appearance, ensuring a good quality finish
<u>5</u>	To evaluate moving toy design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them
<u>6</u>	

### Key vocabulary

Moving toys, design, construction, materials, cams, cogs, effort, fixed, force, gears, lever, load, movable, pulleys, screw, wheel and axel, strength, evaluate, test, improvements.

# Year 6

Sock Snowmen

Seasonal Meals

Rollercoasters

# Sock Snowmen

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate current sock snowmen, understanding how well products have been designed, made, what materials have been used and construction technique
<u>2</u>	To experiment with different fabric and stitching techniques to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a sock snowman design through discussion, annotated sketches, prototypes, and pattern pieces, explaining their choice of materials and components according to function and aesthetic. To identify a criteria for a successful product.
<u>4</u>	To work safely and accurately with equipment to make a sock snowman, using finishing techniques to strengthen and improve the appearance, ensuring a good quality finish
<u>5</u>	To evaluate sock snowman design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them. To recording evaluations using drawings and labels
<u>6</u>	

### Key vocabulary

Sock, snowmen, purpose, materials, fit for purpose, fabric, fastenings, hem, names of equipment, stitch, seam allowance, seam, strength, structure, evaluate, test, improvements.

# Seasonal Meal

### Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To research seasonal foods – fruits and vegetables. Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. To taste and evaluate seasonal foods, identifying likes/dislikes and considering the views of others
<u>2</u>	To understand the principles of a healthy and varied diet through exploration of nutrients included in ingredients
<u>3</u>	To research seasonal dishes created by famous chefs, to develop clear ideas of ingredients, tools and techniques used
<u>4</u>	To plan a seasonal meal design through discussion and annotated sketches, explaining their choice of ingredients, according to function and aesthetic. To identify a criteria for a successful product.
<u>5</u>	To work safely and accurately with equipment to prepare and cook a seasonal meal, using techniques such as peeling, chopping, slicing, grating, mixing, and spreading
<u>6</u>	To evaluate seasonal meal against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them. To recording evaluations using drawings and labels

### Key vocabulary

Seasonality, grown, reared, caught, processed, taste, allergies, ingredients, nutrients, carbohydrates, dairy, fat, protein, vitamins, stir, mix, combine, cook, temperature, season, evaluate, test, improvements.

Rollercoasters

## Sequence of lessons

<u>Lesson</u>	<u>Objective</u>
<u>1</u>	To explore and evaluate different types of rollercoasters, considering inventors/designers/engineers/ who have developed rollercoasters, understanding how well products have been designed, made, what materials, components have been used and construction technique
<u>2</u>	To use mathematical and scientific knowledge to investigate and experiment with a range of materials to develop clear ideas, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail
<u>3</u>	To plan a rollercoaster design through discussion, annotated sketches, prototypes, and pattern pieces, explaining their choice of materials and components according to function and aesthetic. To identify a criteria for a successful product
<u>4</u>	To work safely with equipment to make a rollercoaster, making modifications in the process, using finishing techniques to strengthen and improve the appearance, ensuring a good quality finish
<u>5</u>	To evaluate rollercoaster design against design criteria, by carrying out appropriate tests and considering others viewpoints on how to improve them. To recording evaluations using drawings and labels
<u>6</u>	

## Key vocabulary

Rollercoasters, purpose, material, movement, assemble, marking out, join, shape, stability, frame structure, shell structure, evaluate, test, improvements.