



# Design Technology Curriculum Pathway

Peters Hill Primary School  
Subject Leader – Rebecca Evans and Katie Lloyd

## **Intent Statement**

We want all children to understand and demonstrate our underlying principles of [Ambition](#), [Belief](#), [Compassion](#), [Pride and Respect](#). We want our curriculum to enable children to become [successful](#), [confident](#), [motivated and responsible](#) individuals with a [wealth of knowledge](#) about the world around them. We want all children to develop their full potential in a structured, caring and purposeful learning environment. We want all children to understand the connections that exist between new learning and existing knowledge through an awareness of carefully chosen pathways.

## **At Peters Hill Primary School the curriculum is designed to:**

- Recognise all pupils as individuals and encourage positive self-worth and self-esteem.
- Promote curiosity, enthusiasm and engagement through a range of topics and themes.
- Encourage resilience and confidence to face challenges and tackle problems.
- Foster logical, creative and deep thinking to solve challenges and problems.
- Develop Independence and promote responsibility for learning.
- Nurture respect for others and value differences within our school community.
- Grow an awareness of civic responsibility and global citizenship.
- Develop a strong awareness of prior learning and the links that exist to new knowledge.
- Develop new learning and understand the impact on ourselves, the school and the wider community.

## **Our Design and Technology Pathways are:**

- Pathway 1 - Developing, planning and communicating ideas**
- Pathway 2 - Working with tools, equipment, materials and components to make quality products**
- Pathway 3 - Technical knowledge**
- Pathway 4 - Evaluating processes and products**
- Pathway 5 – Food**
- Pathway 6 – Mechanisms**
- Pathway 7 – Textiles**
- Pathway 8 – Structures**
- Pathway 9 – Electrical Systems**

Pathways	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><b>Developing, planning and communicating ideas</b></p>	<p>I can generate my own ideas to make something</p> <p>I can explain to someone else how I want to make my product.</p> <p>I can make a simple plan before making. I can describe how something works.</p>	<p>I can identify at least one feature my product needs to have, to be successful.</p> <p>I can create a labelled picture of my idea.</p>	<p>I can discuss existing products.</p> <p>I can identify some of the features my product needs to be successful.</p> <p>I am beginning to understand that my product might be useful to a certain group or individual.</p> <p>I can make a clear, labelled sketch of my design.</p> <p>I can practise/test my skills, e.g. stitching, mechanisms.</p>	<p>I can investigate existing products.</p> <p>I can explain and follow a given design criteria.</p> <p>I can identify who my product is for. I can make a clear, labelled sketch of each part of my design.</p> <p>I can practise/test my skills, e.g. stitching, mechanisms.</p>	<p>I can research a range of existing products.</p> <p>I can suggest ideas for my own design criteria.</p> <p>I understand that my product might be suitable for specific individual or group.</p> <p>I can create a product that has clear purpose.</p> <p>I can communicate my ideas through multiple annotated sketches.</p> <p>I can experiment with computer-aided design. I can make mock-ups to test my design.</p>	<p>I can independently research a range of existing products.</p> <p>I can develop my own design criteria.</p> <p>I can create something that is aimed at a specific individual or group.</p> <p>I can create a product that is functional and fit for purpose.</p> <p>I can communicate my ideas through annotated sketches, cross-sectional and exploded diagrams.</p> <p>I can use computer-aided design.</p> <p>I can create a prototype.</p>

**Working with tools, equipment, materials and components to make quality products**

I can use resources and tools correctly, e.g. scissors.

I can cut, shape and join materials.

I can investigate materials and choose suitable ones to make my product.

I can join materials/components in different ways.

I am beginning to use finishing techniques to make my products more appealing.

I can use tools/equipment safely and correctly.

I can suggest one reason why some materials/components might be suitable to create my products.

I am beginning to use finishing techniques more consistently to make my products more appealing.

I can use tools/equipment safely and correctly.

I am beginning to suggest reasons why some materials/components might be suitable to create my products.

I can use finishing techniques consistently to make my products more appealing.

I can name and explain the purpose of the tools/equipment I use to make my products.

I can use tools/equipment safely and with reasonable accuracy.

I can suggest why materials/components might be suitable to create my products.

I can use finishing techniques effectively.

I can select the correct tools/equipment to cut, shape, join and finish my products.

I can use tools/equipment safely and accurately.

I can select appropriate materials/components to create my products.

I can justify my choice of material/components based on, e.g. their properties, aesthetic qualities.

**Technical  
knowledge**

I can experiment with making my products stronger, stiffer and more stable.

I can make a slider.

I can find one way to make my structures stronger, stiffer and more stable.

I can use mechanisms, e.g. levers, sliders, wheels and axles, in my products.

Most of my product is strong and stable.

I can use mechanical systems in my products, e.g. gears, pulleys, cams, levers and linkages.

I can make a product that is strong and stable.

I can use mechanical systems in my products, e.g. gears, pulleys, cams, levers and linkages.

I can use a variety of techniques to strengthen my products.

I can use a mechanical system in my products, e.g. gears, pulleys, cams, levers and linkages.

I can strengthen, stiffen and reinforce my products.

I understand and can use mechanical systems in my products, e.g. gears, pulleys, cams, levers and linkages.

I understand and can use electrical systems in my products, e.g. series circuits incorporating switches, bulbs, buzzers and motors.

**Evaluating processes and products**

I can say what I like/dislike about existing/my products.

I can say what I like/dislike about existing products.

I can say what went well with my product.

I can say one thing I would change to improve my product.

I can identify one positive feature of an existing product.

I can identify one positive feature of my own product or the product of another.

I can make one improvement to my work.

I can say whether I think an existing product works well or not.

I can say whether my products/the products of others work as intended.

I can make more than one improvement to my work.

I can identify the positive/negative features of existing products.

I can judge whether my products/the products of others match the design criteria.

I can make some improvements to my work based on my own and the evaluations of others.

I can identify how a key events/individual in design and technology has helped shape the world.

I can appraise a range of existing products, identifying the positive/negative features and suggesting improvements.

I can evaluate my products against my own design criteria.

I can constructively evaluate the work of others against their design criteria.

I can make improvements to my work based on my own and the evaluations of others.

I understand how key events and individuals in design and technology have helped shape the world.

Food

<p>I can develop my knowledge of basic healthy eating messages.</p> <p>I can develop the skills to safely use a range of basic cooking equipment (e.g. knife, chopping board, spoon, fork, bowl).</p> <p>I can Shape food with accuracy for a desired effect.</p> <p>I can Shape using a rolling pin.</p> <p>I can spoon ingredients between containers.</p> <p>I can measure using a spoon or count ingredients.</p> <p>I can sift flour into a bowl.</p> <p>I can follow simple instructions given one at a time by an adult.</p>	<p>I can develop my knowledge of basic healthy eating messages.</p> <p>I can develop the skills to safely use a range of basic cooking equipment (e.g. knife, chopping board, spoon, fork, bowl).</p> <p>I can whisk using a fork.</p> <p>I can rub in fat to flour.</p> <p>I can knead dough.</p> <p>I can spoon ingredients between containers.</p> <p>I can measure referring to ingredients in simple fractions.</p> <p>I can cut using a table knife to cut into equal portions.</p> <p>I can grate soft foods e.g. cheese, cucumber.</p>	<p>I can develop my knowledge of healthy eating messages.</p> <p>I can develop the skills to safely use a range of basic cooking equipment (e.g. knife, chopping board, spoon, fork, bowl).</p> <p>I can cut food safely.</p> <p>I can peel with a swivel peeler with supervision.</p> <p>I can shape and mould to create visually appealing products.</p> <p>I can spoon ingredients between containers equally dividing mixture.</p> <p>I can measure using a jug with support</p> <p>I can cut out placing the cutter in positions to make best use of the material and avoid waste.</p>	<p>I can develop my knowledge of healthy eating messages.</p> <p>I can develop the skills to safely use a range of basic cooking equipment (e.g. knife, chopping board, spoon, fork, bowl).</p> <p>I can cut food safely.</p> <p>I can peel with a swivel peeler with supervision.</p> <p>I can shape and mould to create visually appealing products.</p> <p>I can spoon ingredients between containers equally dividing mixture.</p> <p>I can mix/stir to combine.</p> <p>I can measure using a jug with support</p> <p>I can measure Using digital scales with support to begin with.</p>	<p>I can develop my knowledge of healthy eating messages.</p> <p>I can develop the skills to safely use a range of basic cooking equipment (e.g. knife, chopping board, spoon, fork, bowl).</p> <p>I can cut food safely using a bridge hold.</p> <p>I can peel with a swivel peel to create food ribbons to be used in a dish.</p> <p>I can spoon ingredients between containers equally dividing mixture.</p> <p>I can mix/fold ingredients together carefully.</p> <p>I can measure using a jug independently.</p> <p>I can measure Using digital scales independently.</p>	<p>I understand the principles of a healthy and varied diet.</p> <p>I can demonstrate the skills to safely use a range of basic cooking equipment (e.g. knife, chopping board, spoon, fork, bowl).</p> <p>I can cut food safely using a bridge hold.</p> <p>I can peel with a swivel peel to create food ribbons to be used in a dish.</p> <p>I can spoon ingredients between containers equally dividing mixture.</p> <p>I can mix/fold ingredients together carefully.</p> <p>I can measure using a jug independently.</p> <p>I can measure Using digital scales independently.</p>
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		<p>I can follow a simple recipe supported by an adult</p> <p>I can explain how to work with food hygienically.</p> <p>I can identify different food groups.</p>	<p>I can grate soft foods e.g. cheese, cucumber.</p> <p>I can follow a simple recipe with guidance from an adult.</p> <p>I can explain how to work with food hygienically.</p> <p>I can identify different food groups.</p> <p>I can name some of the food groups that are part of a healthy diet.</p> <p>I can prepare a variety of dishes.</p>	<p>I can cut out placing the cutter in positions to make best use of the material and avoid waste.</p> <p>I can grate firmer foods e.g. apple, carrot.</p> <p>I can follow a simple recipe with guidance from an adult.</p> <p>I can explain how to work with food hygienically.</p> <p>I can identify different food groups.</p> <p>I can name all the food groups that are part of a healthy diet.</p> <p>I can prepare a variety of dishes using a range of techniques.</p>	<p>I can grate firmer foods e.g. apple, carrot.</p> <p>I can follow a simple recipe independently.</p> <p>I can explain and demonstrate how to work with food hygienically.</p> <p>I know the approximate portion size you should eat from each food group as part of a healthy diet.</p> <p>I can prepare and cook a variety of dishes using a range of cooking techniques.</p>	<p>I can grate using the zesting part of the grater.</p> <p>I can follow a simple recipe independently.</p> <p>I can explain and demonstrate how to work with food hygienically.</p> <p>I can prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>I understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</p>
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## Mechanisms

### Wheels and Axels

Generate ideas and simple design criteria.

Develop and communicate ideas through drawings and mock-ups.

Select a range of tools and equipment and materials to perform practical tasks.

Explore wheels and axles and evaluate their ideas and products against original criteria.

### Sliders and Levers

Generating, modelling and communicating ideas.

Planning making, selecting tools and using finishing techniques.

Exploring books and products; evaluating own product against original criteria.

Exploring sliders and levers; understanding types of movement; technical vocabulary.

### Levers and Linkages

Generate realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas.

Select and use tools with some accuracy to cut, shape and join paper and card.

Investigate and analyse their own and others' products with lever and linkage mechanisms.

Understand and use lever and linkages, and fixed and loose pivots.

### Pneumatics

Generate their own realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas.

Select and use tools with some accuracy, cut and join materials and components such as tubing, syringes and balloons.

Investigate and find information on and products with pneumatic mechanisms and evaluate their own products and ideas against criteria and user needs.

Understand and use pneumatic mechanisms.

### Cams

Generate a design from research; develop a specification, model and communicate ideas.

Produce lists of tools and materials and plans to make accurately assembled and well finished products within constraints.

Compare final product to the original specification; test products with the intended user and critically evaluate the product, considering the views of others.

Investigate famous manufacturing and engineering companies relevant to the project.

### Pulleys or Gears

Generate ideas through research and develop and communicate a simple design specification.

Select use a range of tools and equipment to make products that that are accurately assembled and well finished within the constraints of time, resources and cost.

Compare the final product to the original design specification and test the quality of the design, manufacture and functionality with the user.

Investigate famous manufacturing and engineering companies relevant to the project.

## Textiles

### Templates and Joining Techniques

Design a functional, appealing product for a chosen user and purpose.

Generate, develop, and communicate ideas.

Use a range of textiles, tools and equipment to perform practical tasks.

Explore and evaluate existing textile products and their own ideas and products.

Understand how 3-D textile products are made, using joining, templates and finishing to create two identical shapes.

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Understand how 3-D textile products are made, using joining, templates and finishing to create two identical shapes.

### 2D Shape to 3D product

Generate design criteria for an appealing, functional product for specific users.

Produce annotated sketches, prototypes, final product sketches and pattern pieces.

Select fabrics and fastenings according to their functional characteristics.

Investigate a range of 3-D textile products.

Test their product against the original criteria and with the intended user.

### 2D Shape to 3D product

Generate design criteria for an appealing, functional product for specific users.

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Select fabrics and fastenings according to their functional characteristics.

Investigate a range of 3-D textile products.

Test their product against the original criteria and with the intended user.

### Combining different fabric shapes

Generate and communicate innovative ideas through research.

Produce detailed lists of equipment and fabrics and formulate step-by-step plans for making.

Investigate and analyse textile products linked to their final product and compare the final product to the original design specification.

Know that a 3-D textile product can be made from a combination of pattern pieces, fabric shapes and different fabrics and that fabrics can be strengthened, stiffened and reinforced.

### Using computer aided design in textiles

Generate innovative ideas through research and develop these using mock-ups and prototypes including using computer-aided design.

Design functional, appealing products for the intended user that are fit for purpose based on a simple design specification.

Select and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished.

Work within the constraints of time, resources and cost.

## Structures

### Freestanding Structures

Generating design ideas; developing modelling and explaining using talk, mock-ups and drawings.

Planning making, selecting tools and new and recycled materials; using finishing techniques.

Exploring existing freestanding structures; evaluating their own products against original criteria.

Know about strengthening structures; knowledge of vocabulary.

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Generating design ideas; developing modelling and explaining using talk, mock-ups and drawings.

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Exploring existing freestanding structures; evaluating their own products against original criteria.

Know about strengthening structures; knowledge of vocabulary.

### Shell Structures

Generate and develop realistic ideas and design criteria collaboratively and through analysis of existing products.

Order the stages of making; selecting tools and using with some accuracy.

Investigate and evaluate shell structures, and construct strong, stiff shell structures.

Test and evaluate own products against design criteria and intended user and purpose.

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### Frame Structures

Research user needs and existing products and develop and model innovative ideas into a design specification.

Formulate a plan with a step-by-step list of tasks and resources.

Use tools to accurately measure, mark out, cut, shape and join materials to make frameworks.

Use finishing techniques suitable for the product and critically evaluate their products against a range of criteria.

Research key events and individuals relevant to frame structures.

### Shell structures using computer aided design

Generate ideas and designs, developing them through analysis of shell structures and use CAD to model and communicate ideas.

Plan the making and use appropriate tools and software, explaining their choices. Use computer-generated finishing techniques.

Evaluate shell structures and their own products.

Develop knowledge of nets of cubes and cuboids and more complex 3D shapes and how to construct strong, stiff shell structures.

## Electrical Systems

### Simple Circuits and switches

Use annotated sketches, cross sectional and exploded diagrams to develop and communicate ideas.

Select and use tools with some accuracy to cut, shape, join and finish.

Use construction materials and electrical components according to their functional properties and aesthetic qualities.

Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.

### Simple programming and control

Gather information and develop and communicate realistic design ideas using annotated sketches and prototypes.

Connect simple electrical components in a series circuit and program an interface to enhance the way the product works.

Investigate and analyse a range of powered products, including programmed, and evaluate their own products and design criteria.

Understand and use computing to program and control products with electrical systems.

### Monitoring and Control

Develop a design specification for a product that responds automatically to environmental changes in the environment.

Generate and communicate ideas through annotated sketches and representations of electrical circuits or circuit diagrams.

Using a step-by-step plan, select and accurately assemble materials, electrical components, to produce a functional product.

Create and modify a computer control program to enable their electrical product to respond to changes in the environment.

### More complex switches and circuits

Develop a design specification for a functional product that responds automatically to changes in the environment.

Formulate a step-by-step plan to making, listing tools, equipment, materials and components.

Use a computer control program to enable an electrical product to work automatically in response to changes in the environment.

Test and evaluate the system to demonstrate its effectiveness for the intended user and purpose.

Know and use technical vocabulary relevant to the project.