



Filey Junior School

Widening Horizons and Reaching Our Potential. Respecting the World and Each Other.
A Happy, Healthy and Positive Learning Community

Design Technology Pillars

Explore & Design	Make & Build	Test & Evaluate
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Design Technology Themes

Structures <u>Risk Assessment</u>	Mechanical systems <u>Risk Assessment</u>	Food & nutrition <u>Risk assessment</u>	Electrical systems <u>Risk Assessment</u>	Textiles <u>Risk Assessment</u>
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Pillars Progression

Explore & Design

<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Explore & Design <ul style="list-style-type: none"> ● Use existing products to help design a functional product. ● Plan and make a functional product for a specific purpose showing an awareness of the intended user.. ● Create labelled designs using annotated sketches 	Explore & Design <ul style="list-style-type: none"> ● Use knowledge of existing products to design a functional and appealing product for a specific purpose and audience ● Identify & order stages to make a product and list materials and tools needed. ● Create designs using annotated & cross-sectional 	Explore & Design <ul style="list-style-type: none"> ● Create designs using cross-sectional diagrams, exploded diagrams and CAD. ● Use research into existing products to inform their own design of a product. ● Produce step by step plans or to guide making, demonstrating they plan a 	Explore & Design <ul style="list-style-type: none"> ● Use research (including famous designers and inventors) to inform designs for their own innovative products. ● Apply knowledge of materials and techniques to improve the function and aesthetic qualities of a product. ● Generate, develop and

	diagrams.	sequenced process from design to final product	communicate ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces & computer aided design.
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Make & Build

<u>Year 3</u>	<u>Year 4</u>	<u>Year</u>	<u>Year 6</u>
<p>Make & Build</p> <ul style="list-style-type: none"> • Safely measure, mark out, cut, assemble with some accuracy using appropriate tools. • Use a range of joining techniques • Make suitable choices from a range of materials. 	<p>Make & Build</p> <ul style="list-style-type: none"> • Use technique which require more accuracy to cut, shape, join and finish e.g. cutting internal shapes, slots in frameworks. • Make thoughtful choices from a range of tools and material suited to the task. • Use planning to actively inform making. 	<p>Make & Build</p> <ul style="list-style-type: none"> • Independently apply knowledge of a wider range materials, tools and techniques. • Use a range of tools suited for different purposes and show how to use them effectively and safely. • Follow to a design criteria and plan, within a timescale 	<p>Make & Build</p> <ul style="list-style-type: none"> • Independently select and use effectively a range of tools showing a good understanding of safety and use with precision. • Use technical knowledge and accurate skills to problem solve during the making process • Follow plans and make thoughtful adjustments

Test & Evaluate

<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<p>Test & Evaluate</p> <ul style="list-style-type: none"> • Evaluate and compare existing products. • Evaluate & assess their own product made using a simple design criteria. 	<p>Test & Evaluate</p> <ul style="list-style-type: none"> • Consider how existing products and his/her own finished products might be improved. • Evaluate and how well they meet the needs of the 	<p>Test & Evaluate</p> <ul style="list-style-type: none"> • Create prototypes to test ideas • Use a design criteria to evaluate their own and others designs and final products • Adapt and improve initial plans giving reasons for changes. 	<p>Test & Evaluate</p> <ul style="list-style-type: none"> • Use prototypes to test out and evaluate design ideas • Use knowledge of famous designs to further explain the effectiveness of existing products and products he/she has made

intended user.

Themes Progression

Food & Nutrition

Year 3

Year 4

Year 5

Year 6

Food:

- Identify, compare and understand the health benefits of different fruit and vegetables (from the UK and the wider world).
- Describe and compare the different methods of farming in the UK
- Choose and combine different ingredients to create a healthy snack

Food:

- Understand the importance of a healthy, balanced diet and foods from each of the food groups.
- Plan and prepare a savoury dish or product with an awareness of the nutritional value of the ingredients.
- Understand the importance of storing food safely (including different temperatures)

Food:

- Understand seasonality and the advantages of eating seasonal foods.
- Identify advantages and disadvantages of organic/GM foods
- Plan, research and prepare a seasonal dish by incorporating a range of ingredients and technical skills.

Food:

- Research, design and prepare and cook a savoury dish, applying knowledge of ingredients and technical skills.
- Identify where in the world foods are from and the importance of how fair trade and sustainability are a global responsibility
- Understand the importance of food hygiene and cross-contamination (including knowledge of microbes)

Mechanical systems

Mechanical systems LKS2:

- Understand and use mechanical systems such as levers, linkages, or pneumatic systems create movement within a design.
- Investigate how to change a movement for a desired effect
- Use levers and linkages to create a moving product for a purpose **or** use pneumatics within a structure to make other components move.

Mechanical systems UKS2:

- Understand and incorporate pulleys, gears or cam systems to create movement within a design.
- Understand and develop an understanding of how to use different cam mechanisms in products
- Use 3D design software

Structures

Structures LKS2:

- Design and Construct 3D shell structures for a clear purpose
- Compare structures in the environment and identify their purpose and design
- Investigate & apply different methods of enabling structures to remain stable

Structures UKS2:

- Construct frame structures and investigate the different techniques of joining
- Explore different ways to strengthen frames including the use of diagonal struts.
- Build innovative, functional, appealing, structures that are fit for purpose.

Electrical systems**Electrical systems LKS2:**

- Use simple electrical systems in their own designs and products.
- Create a working circuit with a switch within a useful product
- Identify and compare how different electrical systems are used in day to day life and some of the components they require.

Electrical systems UKS2:

- Use more complex electrical systems (including series & parallel circuits) to add increased functionality to products.
- Map out, make & test where different components of a circuit (including motors) will go and incorporate fixing a circuit into a base
- Begin to explore the use of computer-controlled components.

Textiles**Textiles LKS2:**

- Follow a pattern for a product & understand the use of seam allowance
- Identify different types of fastenings that are used in textile products and incorporate one into their own piece
- Select from and use a range of simple stitches including running and back stitch.

Textiles UKS2:

- Design, measure, mark out and cut patterns and fabrics precisely following a design criteria
- Select and use with care a variety of stitches(including blanket stitch) to assemble
- Use finishing techniques to improve the performance and appearance of the product.