

Design and Technology Knowledge Overview

Year Group	Core Knowledge	Assessment Outcome
Early Years 	In EYFS, skills are taught throughout the year, through Continuous Provision. With focus on high quality block play, outdoor construction and den building, development of scissor skills and involvement in the preparation of healthy snacks. Food Technology: To know how to prepare fruit and vegetables safely for snack. To design and make a sandwich. Structures (hats/castles): To know how to make a solid structure. To know the best method of joining materials for purpose. Early Learning Goals links: Expressive Arts and Design – Creating with materials (ELG): - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. - Share their creations, explaining the process they have used. Fine Motor Skills (ELG): - Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases. - Use a range of small tools, including scissors, paintbrushes and cutlery. - Begin to show accuracy and care when drawing. PSED – Managing-self (ELG): - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	To talk about the foods that the children have made.
		To create solid structures.
		To explore different ways to join materials.
		To be able to talk about their creations and the process involved.

Year One	Zoo enclosures: - To design products based on design criteria, communicating their ideas through planning. - To select from and use a range of tools and equipment to perform practical tasks, (or example, cutting, shaping, joining and finishing) - To select from and use a wide range of construction materials - To evaluate their ideas and products against design criteria - To build structures, exploring how they can be made stronger, stiffer and more stable <u>Design/diagram progression:</u> To draw a geography birds eye view using a key with annotations.	To design, make and evaluate a zoo enclosure. To draw a geography birds eye view using a key with annotations.
	Moving pictures: - To design products based on design criteria, communicating their ideas through planning. - To select from and use a range of tools and equipment to perform practical tasks, (or example, cutting, shaping, joining and finishing) - To select from and use a wide range of construction materials - To explore and evaluate a range of existing products - To evaluate their ideas and products against design criteria - To explore and use mechanisms (levers and sliders), in their products. <u>Design/diagram progression:</u> To draw annotated sketches of their design.	To design, make and evaluate a moving picture using leavers and sliders. To draw annotated sketches of their design.
	Food technology (salad and fruit kebabs): - To use the basic principles of a healthy and varied diet to prepare dishes using correct cutting techniques. - To understand where food comes from. <u>Design/diagram progression:</u> To draw annotated sketches of their design.	To design, make and evaluate a salad/fruit kebabs. To draw annotated sketches.
Year Two	Cars: - To design products based on design criteria, communicating their ideas through planning. - To select from and use a range of tools and equipment to perform practical tasks, (or example, cutting, shaping, joining and finishing) - To select from and use a wide range of construction materials - To explore and evaluate a range of existing products	To design, make and evaluate a toy car using wheels and axels. To draw annotated sketches of their design.

	- To evaluate their ideas and products against design criteria - To build structures, exploring how they can be made stronger, stiffer and more stable - To explore and use mechanisms (wheels and axles), in their products. Design/diagram progression: To draw annotated sketches of their design.	
	Puppets: - To design products based on design criteria, communicating their ideas through planning. - To select from and use a range of tools and equipment to perform practical tasks, (or example, cutting, shaping, joining and finishing) - To select from and use a wide range of textile materials - To explore and evaluate a range of existing products - To evaluate their ideas and products against design criteria Design/diagram progression: To draw annotated sketches of their design.	To design, make and evaluate a textile hand puppet. To draw annotated sketches of their design.
	Food technology (dips and dippers): - To use the basic principles of a healthy and varied diet to prepare dishes, using correct cutting techniques. - To understand where food comes from and begin to recognise seasonal foods. Design/diagram progression: To draw annotated sketches of their design.	To design, make and evaluate dips and dippers. To draw annotated sketches.
Year Three	Moving creatures: - To use research and develop design criteria to inform the design of their product. - To select from and use a wider range of tools and equipment accurately - To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities - To investigate and analyse a range of existing products - To evaluate against their own design criteria and consider the views of others to improve their work - To apply their understanding of how to strengthen, stiffen and reinforce more complex structures - To understand and use mechanical systems in their products (levers and linkages) Design/diagram progression: To draw diagrams from different views using a key to represent fixed or moving pivots.	To design, make and evaluate a moving creature using leavers and sliders. To draw diagrams from different views using a key to represent fixed or moving pivots.

	Handheld maze (additional project, time dependent): - To select from and use a wider range of tools and equipment accurately - To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities - To investigate and analyse a range of existing products - To apply their understanding of how to strengthen, stiffen and reinforce more complex structures	To make and evaluate a handheld maze.
	Magnetic fishing game: - To use research and develop design criteria to inform the design of their product. - To select from and use a wider range of tools and equipment accurately - To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities - To investigate and analyse a range of existing products - To evaluate against their own design criteria and consider the views of others to improve their work - To apply their understanding of how to strengthen, stiffen and reinforce more complex structures <u>Design/diagram progression:</u> To draw annotated sketches. To use CAD (computer aided design) to design a box/packaging design using images and text from word, paint or internet.	To design, make and evaluate a game with emphasis on structure. To draw annotated sketches. To use CAD (computer aided design) to design packaging.
	Food technology (sandwiches): - To understand and apply the principles of a healthy and varied diet. - To prepare and cook a variety of predominantly savoury dishes using a range of cooking and chopping techniques. - To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. <u>Design/diagram progression:</u> To draw exploded diagrams showing layers of the pasta salad.	To design, make and evaluate a pasta salad. To draw exploded diagrams with annotation.
Year Four	Hydraulic heads: - To use research and develop design criteria to inform the design of their product. - To select from and use a wider range of tools and equipment accurately	To design, make and evaluate a hydraulic head, that uses a hydraulic mechanical

	- To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities - To investigate and analyse a range of existing products - To evaluate against their own design criteria and consider the views of others to improve their work - To apply their understanding of how to strengthen, stiffen and reinforce more complex structures - To understand and use mechanical systems in their products (hydraulic syringe system) Design/diagram progression: To draw a labelled, cross-sectional diagram of their project.	system to open the mouth. To draw a labelled, cross-sectional diagram of their project.
	Torches: - To use research and develop design criteria to inform the design of their product. - To select from and use a wider range of tools and equipment accurately - To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities - To investigate and analyse a range of existing products - To evaluate against their own design criteria and consider the views of others to improve their work - To understand how key events and individuals in design and technology have helped shape the world - To understand and use electrical systems in their products, (for example series circuits incorporating switches, bulbs, buzzers and motors). Design/diagram progression: To draw a labelled, cross-sectional diagram of their project.	To design, make and evaluate a torch using electrical components and circuits. To draw a labelled, cross-sectional diagram of their project.
	Food technology (sweet/savoury scones): - To understand and apply the principles of a healthy and varied diet. - To prepare and cook a variety of predominantly savoury dishes using a range of cooking and chopping techniques. - To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. Design/diagram progression: To draw exploded annotated diagrams. To write a recipe with step by step instructions.	To design, bake and evaluate scones. To draw exploded annotated diagrams. To write a recipe with step by step instructions.

Year Five	Textiles: • To use develop design criteria to inform the design of their product. • To select from and use a wider range of textile tools and equipment accurately • To select from and use a wider range of textile materials and components, according to their functional properties and aesthetic qualities • To investigate and analyse a range of existing products • To evaluate against their own design criteria and consider the views of others to improve their work. <u>Design/diagram progression:</u> To combine different shapes using CAD (computer aided design)- use computer to make pattern pieces and for their applique designs.	To design, make and evaluate a textile product. To combine different shapes using CAD (computer aided design).
	Wooden cam: • To use research and develop design criteria to inform the design of their product. • To select from and use a wider range of tools and equipment accurately • To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities • To investigate and analyse a range of existing products • To evaluate against their own design criteria and consider the views of others to improve their work • To understand and use mechanical systems in their products (cams and axels) <u>Design/diagram progression:</u> To draw design from different view-points with annotations about materials and attachments.	To design, build and evaluate a frame structure using cams and axels. To draw design from different view-points with annotations about materials and attachments.
	Food technology (bread): • To understand and apply the principles of a healthy and varied diet. • To prepare and cook a variety of predominantly savoury dishes using a range of cooking and chopping techniques. • To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. • To recognise different cultures, their foods (breads), ingredients used and traditions. <u>Design/diagram progression:</u> To research bread recipes from different cultures. To write a recipe with step by step instructions.	To design, bake and evaluate bread. To research bread from different cultures. To write a recipe with step by step instructions.

Year Six	Lanterns: • To use research and develop design criteria to inform the design of their product. • To select from and use a wider range of tools and equipment accurately • To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities • To investigate and analyse a range of existing products • To evaluate against their own design criteria and consider the views of others to improve their work • To apply their understanding of how to strengthen, stiffen and reinforce more complex structures • To understand and use electrical systems in their products, (for example series circuits incorporating switches, bulbs etc). <u>Design/diagram progression:</u> To draw a 3D diagram with annotations and accurate measurements.	To design, make and evaluate a lantern, using complex switches. To draw a 3D diagram with annotations and accurate measurements.
	Fairgrounds: • To use research and develop design criteria to inform the design of their product. • To select from and use a wider range of tools and equipment accurately • To select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities • To investigate and analyse a range of existing products • To evaluate against their own design criteria and consider the views of others to improve their work • To understand how key events and individuals in design and technology have helped shape the world • To apply their understanding of how to strengthen, stiffen and reinforce more complex structures • To understand and use mechanical systems in their products (gears) • To understand and use electrical systems in their products – more complex switches to be used including computer programming. <u>Design/diagram progression:</u> To draw cross-sectional diagram with annotations and expanded views for detail of carriages. Views from different viewpoints.	To design, make and evaluate a fairground, electricity and gears. To draw cross-sectional diagram with annotations and expanded views for detail of carriages. To show views from different viewpoints.

Food technology (soups):

- To understand and apply the principles of a healthy and varied diet.
- To prepare and cook a variety of predominantly savoury dishes using a range of cooking and chopping techniques.
- To understand seasonality, and know where and how a variety of ingredients are grown, picked and processed.
- To recognise different cultures, their foods (vegetables/soups), ingredients used and traditions.

Design/diagram progression: To research which vegetables are in season and shop for ingredients using a budget. To write a recipe out step by step. To use CAD (Computer aided design) design a label for the soup that they make, considering a logo, ingredients list, barcode etc.

To design, make and evaluate and a seasonal soup.

To research seasonality.

To write a recipe with step by step instructions.

To use CAD to design packaging for their product.