How does DT at Alice Ingham align with the National Curriculum?

★ Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

★ Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.

★ Critique, evaluate and test their ideas and products and the work of others.

★ Understand and apply the principles of nutrition and learn how to cook.

Design

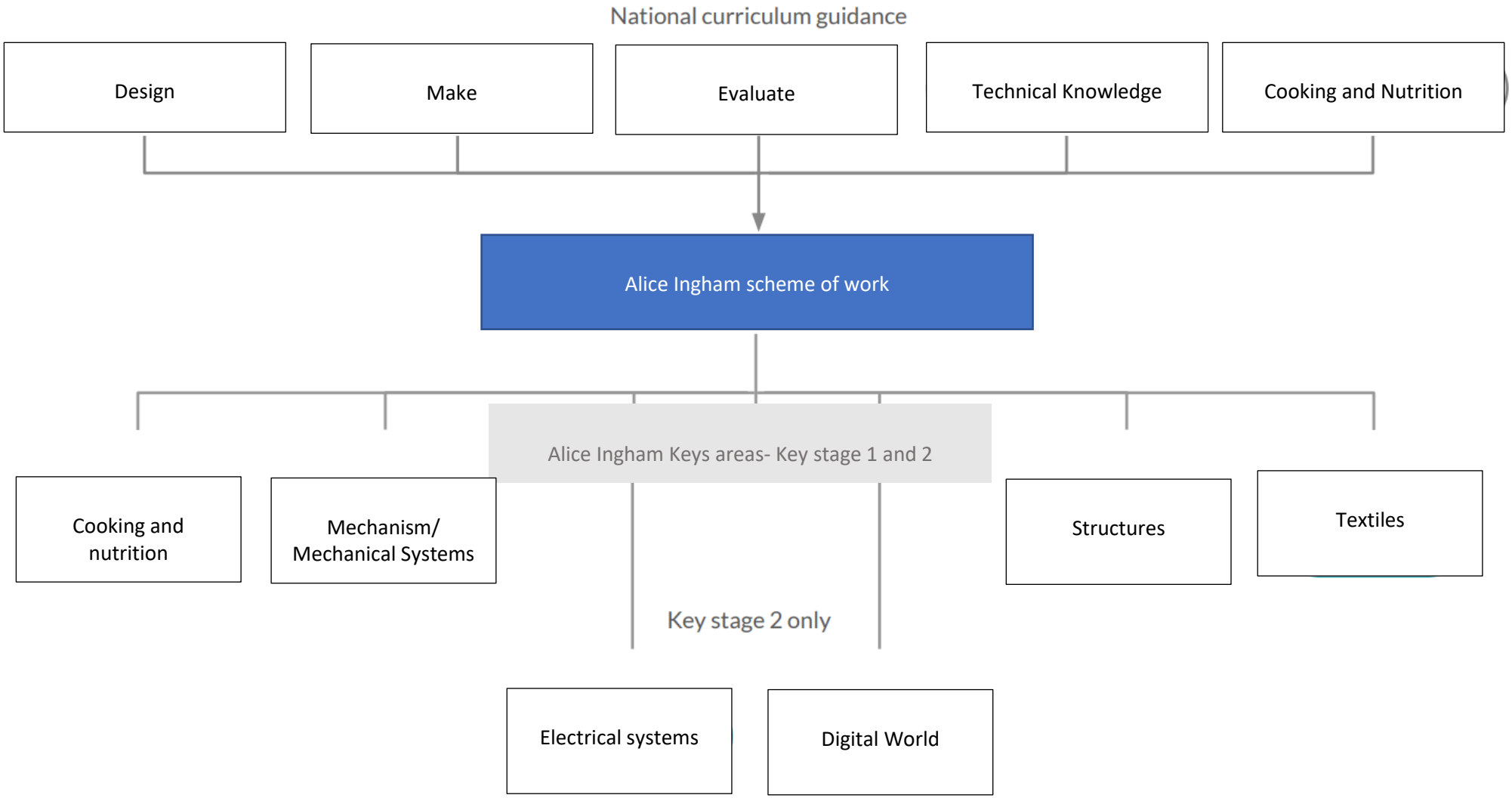
Make

Evaluate

Technical Knowledge

Cooking and Nutrition

How is DT at Alice Ingham scheme of work organised?



Keys areas

How is the Design and technology scheme of work organised?

The six key areas are revisited each year, with Electrical systems and Digital world beginning in KS2. The areas enable all subject leads, specialists or non-specialists, to understand and make it easy for teachers to see prior and future learning for your pupils. You can see, at a glance, how the unit you are teaching fits into their wider learning journey.

Cooking and nutrition

where food comes Where food comes from, balanced diet, preparation and cooking skills. Kitchen hygiene and safety. Following recipes.

Mechanisms/ Mechanical Systems

Mimic natural movements using mechanisms such as cams, followers, levers and sliders.

Structures

Material functional and aesthetic properties, strength and stability, stiffen and reinforce structures.

Electrical systems

Operational series circuits, circuit components, circuit diagrams and symbols, combined to create various electrical products.

Digital world

Program products to monitor and control, develop designs and virtual models using 2D and 3D CAD software.

Textiles

Fastening, sewing, decorative and functional fabric techniques including cross stitch, blanket stitch and appliqué.

The design process

Design:

★ Research
★ Design criteria (e.g. tailoring to an audience/user).
★ Idea generation (e.g. annotated sketches).
★ Idea development (e.g. templates, pattern pieces.).
★ Models and prototypes (both virtual and physical).
★ Cross-sectional and exploded diagrams.
★ Innovative, fit-for-purpose and functional product solutions to design problems.

Make:

★ Select and use appropriate tools and equipment.
★ Understand and select materials and components (including ingredients) based on their aesthetic and functional properties.
★ Carry out practical tasks with increasing accuracy and precision.
★ Understand the importance of, and follow the health and safety rules.

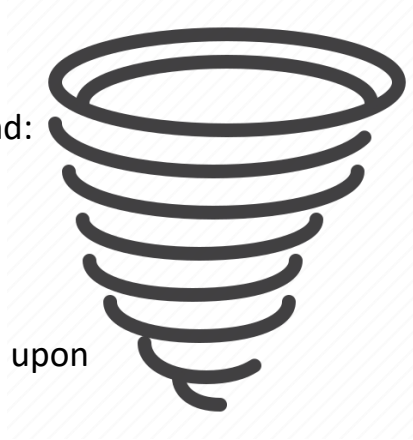
Evaluate:

★ Explore existing products.
★ Evaluate against a list of design criteria.
★ Evaluate, investigate and analyse existing products.
★ Evaluate their own and others' ideas.
★ Understand how key events and individuals have helped to shape the world of D&T.
★ Consider feedback to make improvements.

Cooking and nutrition* has a separate section in the D&T National Curriculum, with additional focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality. Food units still follow the design process summarised above, for example by tasking the pupils to develop recipes for a specific set of requirements (design criteria) and to suggest methods of packaging the food product including the nutritional information.

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

A spiral curriculum



The scheme of work has been designed as a spiral curriculum with the following key principles in mind:

✓ Cyclical: Pupils return to the key strands again and again during their time in primary school.

✓ Increasing depth: Each time the key strand is revisited it is covered with greater complexity.

✓ Prior knowledge: Upon returning to each key strand, prior knowledge is utilised so pupils can build upon previous foundations, rather than starting again.

Is there any flexibility in the Kapow Primary Design and technology scheme?

This Design and technology scheme of work is organised into units of four lessons (or six in EYFS: Reception).

Within each unit, lessons must be taught in order as they build upon each other.

Across a single year group, units themselves do not need to be taught in the suggested order.

The flexibility in the order allows schools to adapt the planning to suit their school and to make use of cross-curricular links available.

The suggested order in these long term plans takes account of the limited resources which may be available in school. Therefore the key strands have

been distributed across the year so that all year groups are not requiring the same tools and equipment at the same time.

Whole School Overview

Whole School Summary

	Workshop	Mechanisms	Structures	Textiles	Electrical systems	Cooking and Nutrition
EY	Junk modelling	-	Boats	-	-	Soup
Y1	-	Wheels and axles	Windmills	~~Puppets~~	-	Fruit and vegetable smoothie
Y2	-	Moving monsters	~~Baby bear's chair~~	Pouches	-	A balanced diet
Y3	-	Pneumatic toys	Castles	~~Cushions~~	~~Static electricity~~	Eating seasonally
Y4	~~-~~	~~Slingshot cars~~	~~Pavillions~~	Fastenings	Torches	Adapting a recipe
Y5	-	Pop-up books	Bridges	~~Stuffed Toys~~	~~Electric greetings cards~~	What could be healthier?
Y6	-	~~Automata toys~~	~~Playgrounds~~	Waistcoats	Steady hand games	Come dine with me

	AUTUMN	SPRING	SUMMER
EY	Food: Soup	Workshop- Junk Modelling	Structures: Boats
Y1	Cooking and Nutrition: Fruit and Veg	Mechanisms: Wheels and axels	Structures: Constructing a windmill
Y2	Mechanism: Making a moving decoration	Textiles: Pouches	Cooking and Nutrition: A balanced diet
Y3	Structures: Constructing a castle	Mechanisms: Pneumatic toys	Cooking and Nutrition: Eating seasonally
Y4	Food: Adapting a Recipe Electrical	Electrical Systems: Torches	Textiles: Fastenings
Y5	Mechanical Systems: Making a pop-up book	Structures: Bridges	Cooking and Nutrition: What could be healthier?
Y6	Textiles: Waistcoats	Electrical Systems: Steady hand games	Cooking and Nutrition: Come Dine with Me

Rationale behind the choices

In consultation with teaching staff, we have slimmed down the suggested topics from Kapow whilst ensuring we still deliver a broad and balanced curriculum. This document has been produced alongside the National Curriculum to make certain we cover all objectives across a key stage.

Cooking and nutrition features in every year group. We believe this is an essential skill for the children in our school.

It is important we teach our pupils that making mistakes is a huge part of Design and Technology and integral to learning. This links into our school value: Resilience.

Outline

	AUTUMN	SPRING	SUMMER
EY	Food: Soup	Workshop- Junk Modelling	Structures: Boats
Y1	Cooking and Nutrition: Fruit and vegetables **(4 lessons)** Handle and explore fruits and vegetables and learn how to identify which category they fall into, before undertaking taste testing to establish chosen ingredients for a smoothie they will make, with accompanying packaging.	Mechanisms: Wheels and axels **(4 lessons)** Learn about the main components of a wheeled vehicle. Develop understanding of how wheels, axles and axle holders work; problem-solve why wheels won't rotate; to design and build their own vehicle designs.	Structures: Constructing a windmill **(4 lessons)** Design, decorate and build a windmill for a mouse (client) to live in, develop an understanding of different types of windmill, how they work and their key features. Look at real existing examples and the functions that they carry out.
Y2	Mechanism: Making a moving decoration **(4 lessons)** After learning the terms: pivot, lever and linkage, pupils design a monster that will move using a linkage mechanism. Pupils practise making linkages and experiment with various materials to bring their monsters to life.	Textiles: Pouches **(4 lessons)** Introduction to sewing. Pupils make their own template, accurately cut their fabric and sew a basic running stitch.	Cooking and Nutrition: A balanced diet **(4 lessons)** Explore and learn what forms a balanced diet, pupils will taste test ingredient combinations from different food groups that will inform a wrap design of their choice which will include a healthy mix of protein, vegetables and dairy.
Y3	Structures: Constructing a castle **(4 lessons)** Learning about the features of a castle, pupils design and make one of their own. They will also be using configurations of handmade nets and recycled materials to make towers and turrets before constructing a stable base.	Mechanisms: Pneumatic toys **(4 lessons)** Design and create a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts. Pupil are introduced to thumbnail sketches and exploded diagrams.	Cooking and Nutrition: Eating seasonally **(4 lessons)** Pupils discover when and where fruits and vegetables are grown and learn about seasonality in the UK. They look at the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.
Y4	Food: Adapting a Recipe **(4 lessons)** Work in groups to adapt a simple biscuit recipe, to create the tastiest biscuit ensuring that their creation comes within the given budget of overheads and costs of ingredients.	Electrical Systems: Torches **(4 lessons)** Pupils apply their scientific understanding of electrical circuits to create a torch made from recycled and reclaimed materials and objects.	Textiles: Fastenings **(4 lessons)** Building upon their sewing skills from previous years, pupils design and create a book sleeve; exploring a variety of fastenings and selecting the

		They design and evaluate their product against set design criteria.	most appropriate for their design based on strength and appropriate-use
Y5	Mechanical Systems: Making a pop-up book **(4 lessons)** Create a four-page pop-up story book design, incorporating a range of functional mechanisms that use levers, sliders, layers and spacers to give the illusion of movement through interaction.	Structures: Bridges **(4 lessons)** After learning about various types of bridges and exploring how the strength of structures can be affected by the shapes used, create their own bridge and test its durability - using woodworking tools and techniques.	Cooking and Nutrition: What could be healthier? **(4 lessons)** Research and modify a traditional bolognese sauce recipe to make it healthier. Cook improved versions, creating appropriate packaging and learn about where the ingredients the importance of animal welfare when farming cattle.
Y6	Textiles: Waistcoats **(4 lessons)** Select fabrics, use templates, pin, decorate and stitch materials together to create a waistcoat for a person or purpose of their choosing. Create or use a pattern template to fit a desired person or item (e.g. teddy bear).	Electrical Systems: Steady hand games **(4 lessons)** Design and create a steady hand game, use nets to create the bases and apply knowledge of electrical circuits to build an operational circuit with a buzzer that completes the circuit when the handle makes contact with the wire.	Cooking and Nutrition: Come Dine with Me **(4 lessons)** Research and prepare a three-course meal and taste-test and score their food. Research the journey of their main ingredient from 'farm to fork' or write a favourite recipe.