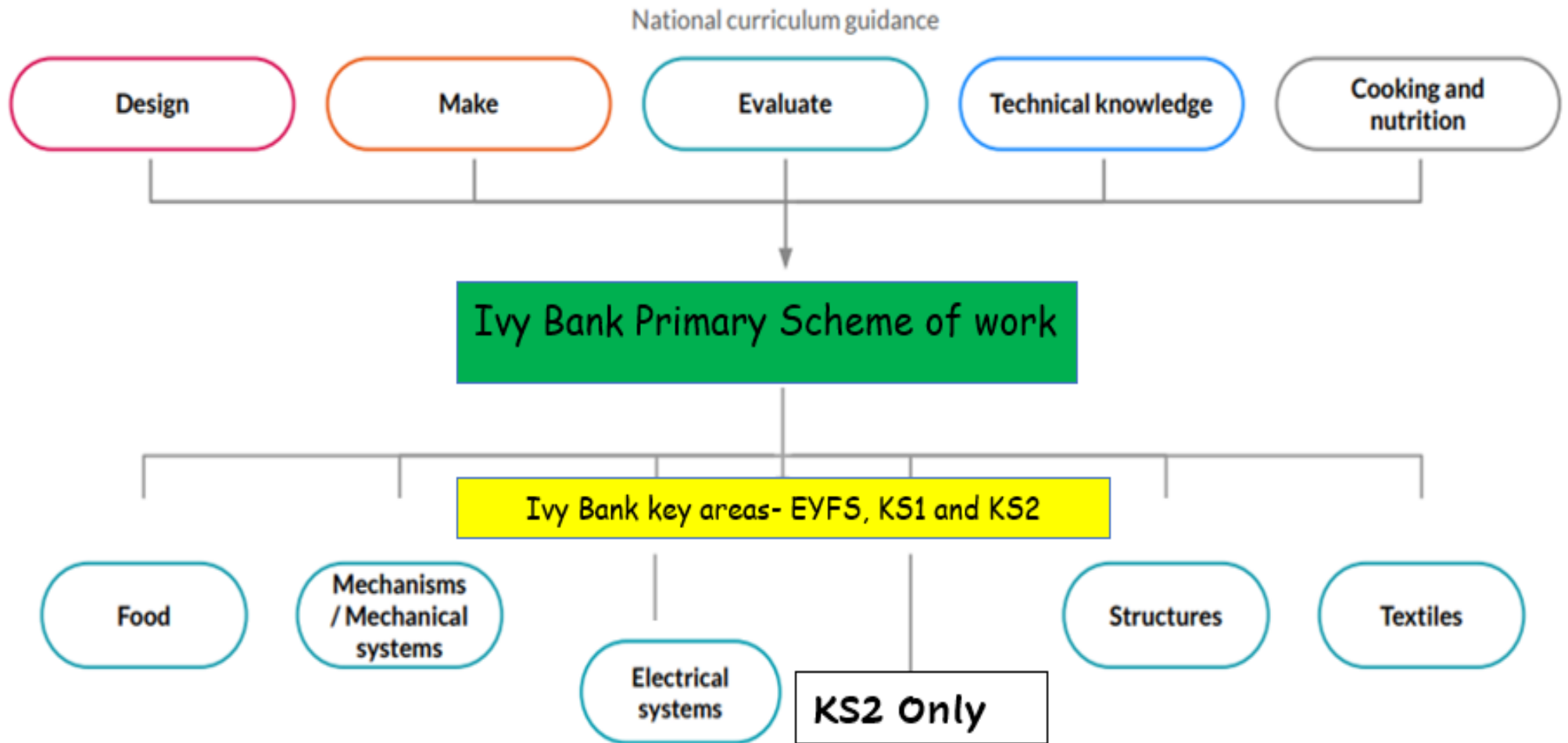


Design and technology Curriculum at Ivy Bank Primary school.



The six key areas are revisited over a two-year curriculum period, with Electrical systems 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, briefly, how the unit fits into the children's wider learning journey.

Food

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.



Key Stage 2

Structures

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



Textiles

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

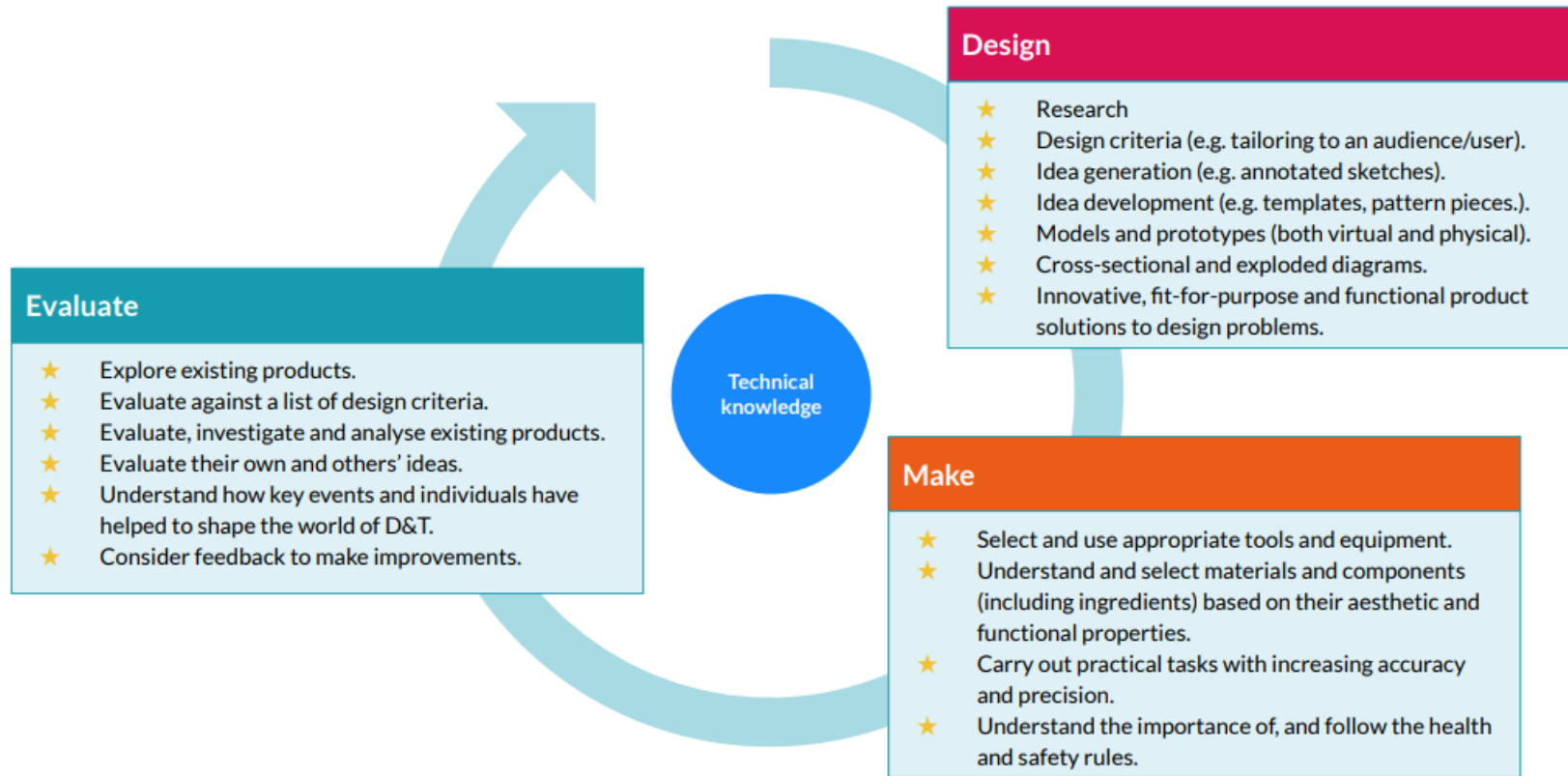


Electrical systems

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



The Design and technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each unit follows these stages, to form a full project. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.



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.

Each of our key area's links to the technical knowledge section of the Design and technology National Curriculum or reinforces principles learnt through exploring various methods and techniques. From KS1 to KS2, the technical knowledge descriptors build upon prior learning and/or introduce new learning.

	Food	Textiles	Structures	Mechanisms	Electrical systems
EYFS	Explore and become familiar with different seasonal fruits and vegetables, using their senses such as pumpkin soup.	Explore and develop threading and weaving skills with different materials and objects.	Explore junk modelling, tinkering with temporary and permanent joins, and a range of materials. Create basic models to test in different conditions.	Explore a simple paper slider mechanism.	KS2 only* Create functional electrical products that use series circuits, incorporating different components such as bulbs, LEDs, switches, buzzers and motors. Consider how the materials used in these products can: • Protect the circuitry. • Reflect light. • Conduct electricity. • Insulate
KS1	Learn about the basic rules of a healthy and varied diet to create dishes. Understand where food comes from, for example plants and animals.	Explore different methods of joining fabrics and experiment to determine the pros and cons of each technique.	Build structures such as windmills and chairs, exploring how they can be made stronger, stiffer and more stable. Recognise areas of weakness through trial and error	Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs. Recognise where mechanisms such as these exist in toys and other familiar products.	
KS2	Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods. Understand what is meant by seasonal foods. Know where and how ingredients are sourced.	Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their: • Strength. • Appropriate use. • Design.	Continue to develop KS1 exploration skills, through more complex builds such as pavilion and bridge designs. Understand material selection and learn methods to reinforce structures.	Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppers	

Here at Ivy Bank our scheme of work has been designed with the following key principles in mind.

- ✓ **Cyclical:** Pupils return to the key areas again and again during their time in primary school.
- ✓ **Increasing depth:** Each time a key area is revisited it is covered with greater complexity.
- ✓ **Prior knowledge:** Upon returning to each key area, prior knowledge is utilised so pupils can build upon previous foundations, rather than starting again.



We have considered the needs of our school community and have made food and nutrition a yearly priority, with all year groups participating.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
FS1	Snack time conversations	Explore a range of vegetables	Explore using a range of materials. Create pictures using a variety of materials.	Explore structures using a variety of natural/junk and construction resources.	Explore a simple use of a split pin mechanism.	
FS2	Snack time conversations/ Exploring senses	Pumpkin soup Seasonal crafts- Wreath making	Weaving	Junk modelling Seasonal crafts	<u>Mechanisms</u> Explore a simple paper slider mechanism.	
Y1	Fruit and Vegetable smoothies			Windmills	Moving Picture books	
Y2	Moving Monsters		Pouches		A Balanced Diet	
Y3		Eating seasonally		Castles		Static electricity
Y4	Adapting a recipe		Fastenings		Slingshot car	
Y5		What could be healthier?		Bridges		Electric greetings cards
Y6	Come dine with me		Waistcoats		Automata toys	

END POINTS FOR EACH AREA

STRUCTURES	
EYFS	To know that different material can be used to make a model.
KS1	To know that a structure is something that has been made and put together. To understand that different structures are used for different purposes. To know that a stable structure is one which is firmly fixed and unlikely to change or move. To know that materials can be joined in different ways. To understand that the shape of a structure affects its strength. To know that structures with wide, flat bases are the most stable.
LKS2	To know that a net is a flat 2D shape that can become a 3D shape once assembled. To know that materials can be manipulated to improve strength and stiffness.
UKS2	To know that there are different ways to reinforce a structure. To know that different materials have different properties and know how to select the most appropriate material for the given structure. To know that triangles can be used to support structures.

<p>Mechanics</p> <p>To know how use mechanisms in my products</p>	
EYFS	<p>I know how to use: scissors to cut and shape; tape to join a different paper and card; pritt Stick and PVA, split pins</p> <p>I know how to use construction kits eg Kinects, Lego</p> <p>I know how simple</p>
KS1	<p>I know that mechanical systems create movement</p> <p>I know to use split pins and hole punch to make a simple lever (pivot?)</p> <p>I know how to make a simple flap and slider</p> <p>I know that there are different types of axles (moving and fixed))</p> <p>I know how to use a saw to cut</p> <p>I know how to measure components (e.g. axle or lever) to the nearest cm</p> <p>I know the properties of some different materials</p>
LKS2	<p>I know that mechanical systems can create different types of <u>movement</u></p> <p>I know how to use increasingly complex levers and linkages using fixed and loose pivots.</p> <p>I know some materials which would be suited to my project based on their characteristics and properties.</p> <p>I know how to measure components with increasing independence.</p>
UKS2	<p>I know that that mechanical systems have an input and an output.</p> <p>I know how cams, pulleys or gears can be used to produce different types of movement.</p> <p>I know how to use a glue gun and hacksaw, sand paper.</p> <p>I know how to measure components (axle, lever) to the nearest mm.</p>

Textiles	
EYFS	<ul style="list-style-type: none"> • Know how to use scissors safely to cut fabric. • Use fabrics to experiment with design and function. • Explain the process they have used to make their creations
KS1	<ul style="list-style-type: none"> • Continue to use scissors with precision, accuracy and independence. • Know how to shape textiles using templates. • Know how to use a needle safely and practise threading it. • Know how to thread a needle. • Know how to join fabrics using different techniques <u>e.g. glueing</u>, stapling, pinning and a running stitch. • Use appropriate finishing techniques to decorate a product
Lower KS2	<ul style="list-style-type: none"> • Use appropriate stitching to join textiles <u>e.g.</u> back stitch, over stitch • Use appropriate fabrics and fastenings according to their function. • Understand and demonstrate how to thread a needle. • Understand the need for patterns and seam allowance. • Use a range of finishing techniques to decorate a product
Upper KS2	<ul style="list-style-type: none"> • Use a range of stitches neatly and accurately to join textiles and as a decorative finish <u>e.g.</u> cross stitch, back stitch • Know that a 3D product can be made from a combination of pattern pieces

Food and Nutrition

EYFS

- To know that fruits and vegetables are grown.
- To know the names of common food products.
- To know that different foods taste, smell and feel different.
- To know that fruits and vegetables are good for us.
- To know that it is important to wash our hands before handling food.

KS1

- To know the difference between fruits and vegetables.
- To know that fruits and vegetables grow in different ways.
- To know that we need a variety of foods in our diet.
- To know the names of simple utensils e.g. knife, chopping board, bowl, spoon, peeler.
- To know how to chop, peel and squeeze.
- I know how to prepare for cooking e.g., wash hands, put on apron and tie hair back.
- To know that 'diet' means the food or drink that a person or animal usually eats.
- To know that a balanced diet includes eating foods from the five main food groups (carbohydrates, fruits and vegetables, protein, dairy and food high in fat and sugar)
- To know how to find the nutritional information on food packaging.
- To know how to slice food safely using the bridge or claw grip.
- To know the importance of preparing and cooking food safely and hygienically, e.g., handwashing, cleaning up regularly and keep work surfaces clean.

LKS1	<p>To know that vegetables and fruits grow in certain seasons in the UK.</p> <p>To know that foods provide health benefits (vitamins, minerals. Fibres)</p> <p>To know that food can be grown, reared, or caught.</p> <p>I know how to use an increasing range of food preparation skills E.g., Kneading and Measuring liquids.</p> <p>To know safety rules for, using, storing, and cleaning utensils.</p> <p>I Know that food can be fresh or processed.</p> <p>To know how to safely use hot appliances e.g wearing oven gloves.</p> <p>I know how to prepare ingredients appropriately.</p> <p>I know how to adapt a recipe to suit my personal taste.</p>
UKS2	<p>To know how to identify nutritional difference between different products and recipes.</p> <p>To know what cross contamination means.</p> <p>To know that certain meats come from specific animals.</p> <p>To know that many countries have national dishes.</p> <p>To know that processed foods mean foods that have been put through multiple changes in a factory.</p> <p>To know what happens to certain foods before it appears on the supermarket shelves (farm to fork)</p>



Electrical Systems

KS2 -

To know how to incorporate an electrical circuit into a product (including switches, bulbs and buzzers).

To know how a range of different switches work - e.g. push switch, toggle switch.

To know how to use a simple program to control and monitor an electrical system.