

Design and Technology



Year 2

EYFS (Reception) Key Stage 1 and 2

Cooking and nutrition

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

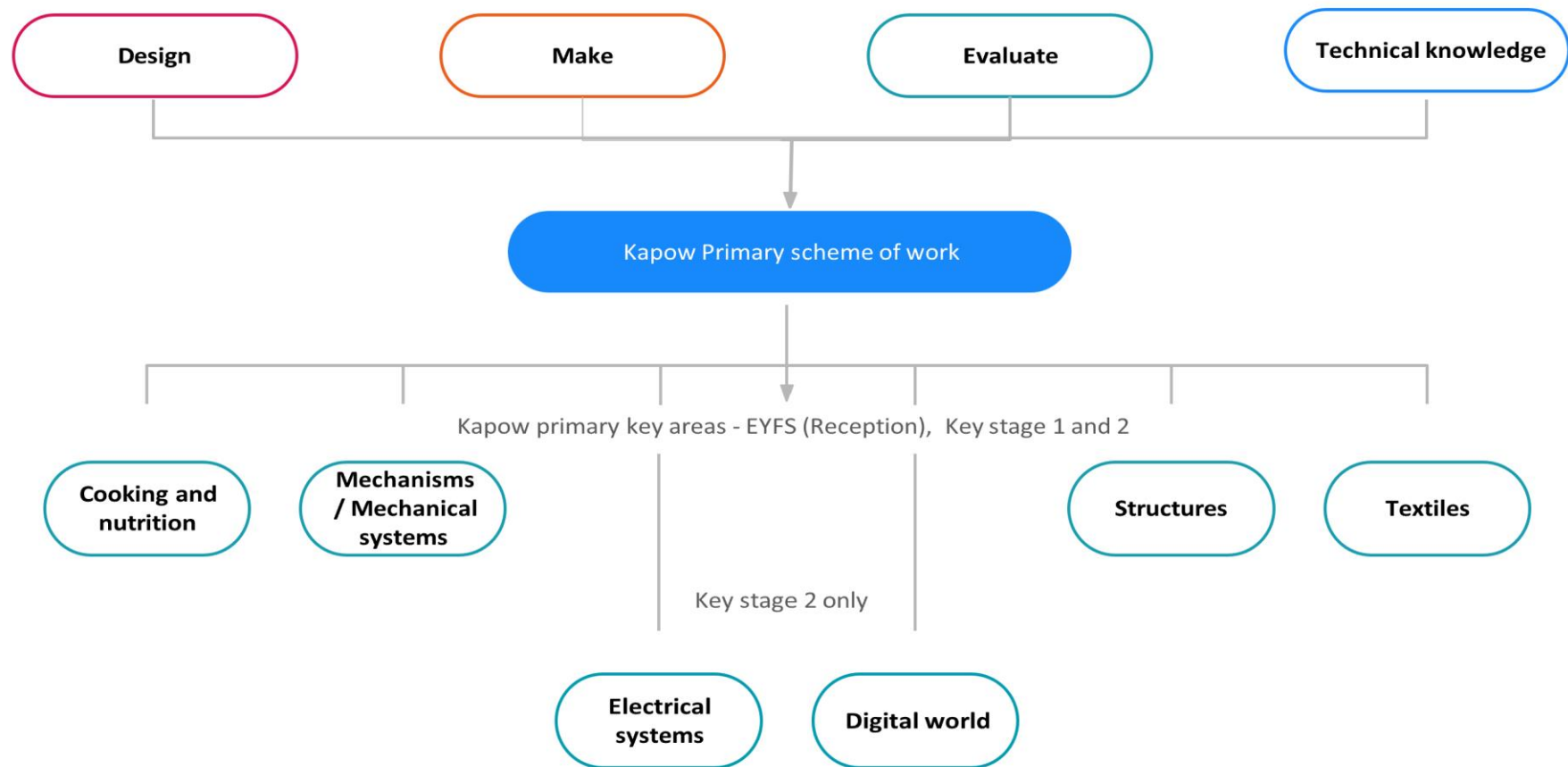
Operational series circuits, circuit components, circuit diagrams and symbols, combined to create various electrical products.



Digital world

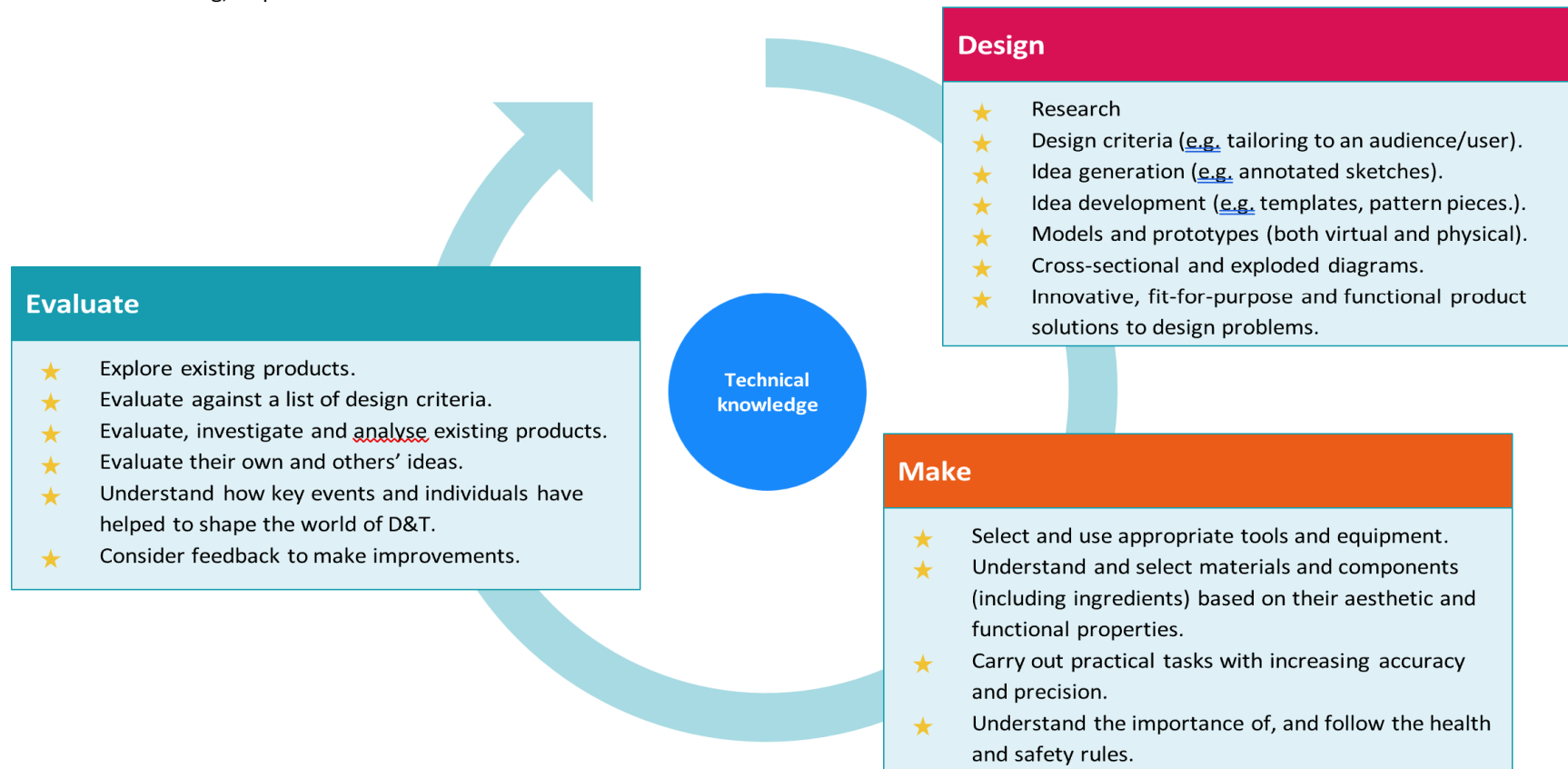
Program products to monitor and control, develop designs and virtual models using 2D and 3D CAD software.





The design process

The Design and technology National Curriculum [outlines](#) the three main stages of the design process: design, make and evaluate. Each Kapow Primary 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.



National Curriculum

KSI

Design	Make	Evaluate	Technical Knowledge	Cooking and Nutrition
● Design purposeful, functional, appealing products for themselves and other users based on design criteria ● Generate, develop, model and communicate their ideas through talking,	● Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] ● Select from and use wide range of materials and components, including	● Explore and evaluate a range of existing products ● Evaluate their ideas and products against design criteria.	● Build structures, exploring how they can be made stronger, stiffer and more stable ● Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	● Use the basic principles of a healthy and varied diet to prepare dishes ● Understand where food comes from.

drawing, templates, mock-ups and, where appropriate, information and communication technology.	construction materials, textiles and ingredients, according to their characteristics			
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Skills Progression

Structure – Baby bear's chair

Skills	Design	Generating and communicating ideas using sketching and modelling. Learning about different types of structures, found in the natural world and in everyday objects.
	Make	- Making a structure according to design criteria. - Creating joints and structures from paper/card and tape. Building a strong and stiff structure by folding paper.
	Evaluate	- Exploring the features of structures. - Comparing the stability of different shapes. - Testing the strength of own structures. - Identifying the weakest part of a structure. Evaluating the strength, stiffness and stability of own structure.
Knowledge	Technical	- To know that shapes and structures with wide, flat bases or legs are the most stable. - To understand that the shape of a structure affects its strength.

		• To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. To know that a 'stiff' structure or material is one which does not bend easily.
	Additional	• To know that natural structures are those found in nature. To know that man-made structures are those made by people.

Mechanisms / mechanical systems. Fairground wheel and making a moving monster

Skills	Design	Selecting a suitable linkage system to produce the desired motion. Designing a wheel.	Creating a class design criteria for a moving monster. Designing a moving monster for a specific audience in accordance with a design criteria.
	Make	Selecting materials according to their characteristics. Following a design brief.	- Making linkages using card for levers and split pins for pivots. - Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly.
	Evaluate	Evaluating different designs. Testing and adapting a design.	Evaluating own designs against design criteria. Using peer feedback to modify a final design.

Knowledge	Technical	• To know that different materials have different properties and are therefore suitable for different uses.	• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.
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	Additional	- To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. - To know that it is important to test my design as I go along so that I can solve any problems that may occur.	To know some real-life objects that contain mechanisms.

Cooking and Nutrition

A balanced diet

Skills	Design	• Designing a healthy wrap based on a food combination which work well together.
	Make	• Slicing food safely using the bridge or claw grip. Constructing a wrap that meets a design brief.
	Evaluate	• Describing the taste, texture and smell of fruit and vegetables. • Taste testing food combinations and final products. • Describing the information that should be included on a label. Evaluating which grip was most effective.
Knowledge	Technical	• To know that 'diet' means the food and drink that a person or animal usually eats. • To understand what makes a balanced diet. • To know where to find the nutritional information on packaging.

		• To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that nutrients are substances in food that all living things need to make energy, grow and develop. • To know that 'ingredients' means the items in a mixture or recipe. • To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.
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	Additional	
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Textiles

Pouches

Skills	Design	• Designing a pouch.
	Make	• Selecting and cutting fabrics for sewing. • Decorating a pouch using fabric glue or running stitch. • Threading a needle. • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using a template.
	Evaluate	• Troubleshooting scenarios posed by teacher. • Evaluating the quality of the stitching on others' work. • Discussing as a class, the success of their stitching against the success criteria. Identifying aspects of their peers' work that they particularly like and why.

Knowledge	Technical	- To know that sewing is a method of joining fabric. - To know that different stitches can be used when sewing. - To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing.
	Additional	

All information taken directly from Kapow.

