



Design & Technology Curriculum Map

By the end of Key Stage One, we expect children to be able to:

- ✓ design purposeful, functional, appealing products for themselves and other users based on design criteria
- ✓ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
- ✓ 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 a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
- ✓ explore and evaluate a range of existing products
- ✓ evaluate their ideas and products against design criteria Technical knowledge
- ✓ 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.

By the end of Key Stage Two, we expect children to be able to:

- ✓ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at individuals or groups
- ✓ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
- ✓ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- ✓ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
- ✓ investigate and analyse a range of existing products
- ✓ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ♣ understand how key events and individuals in design and technology have helped shape the world
- ✓ apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- ✓ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- ✓ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- ✓ apply their understanding of computing to program, monitor and control their products.

Year 1	Autumn Food Technology	Spring Mechanisms	Summer Structures
RDPS Knowledge and Skills	<u>Cooking and Nutrition: Fruits and vegetables</u> - Describe fruits and vegetables and explain why they are a fruit or a vegetable. - Name a range of places that fruits and vegetables grow. - Describe basic characteristics of fruit and vegetables. - Prepare fruits and vegetables to make a smoothie. Kapow link D&T Fruit and Vegetables KS1 Y1 - Kapow Primary Visit to the cookery room: Autumn 1, Week 2 and 3	<u>Wheels and Axels: Moving Vehicles</u> - Explain that wheels move because they are attached to an axle. - Recognise that wheels and axles are used in everyday life, not just in cars. - Identify and explain vehicle design flaws using the correct vocabulary. - Design a vehicle that includes functioning wheels, axles, and axle holders. - Make a moving vehicle with working wheels and axles. - Explain what must be changed if there are any operational issues. Kapow link Mechanisms: Wheels and axles - Kapow Primary	<u>Windmills</u> - Identify some features that would appeal to the client (a mouse) and create a suitable design. - Explain how their design appeals to the mouse. - Make stable structures, which will eventually support the turbine, out of card, tape, and glue. - Make functioning turbines and axles that are assembled into the main supporting structure. - Say what is good about their windmill and what they could do better. Kapow link KS1 Y1 Design & Technology Constructing Windmills- Kapow Primary
Year 2	Autumn Food Technology	Spring Mechanisms	Summer Structures
	<u>Cooking and Nutrition: A Balanced Diet</u> - Name the main food groups and identify foods that belong to each group. - Describe the taste, texture and smell of a given food. - Think of four different wrap ideas, considering flavour combinations.	<u>Mechanical Systems: Fairground Wheel</u> - Design and label a wheel. - Consider the designs of others and make comments about their practicality or appeal. - Consider the materials, shape, construction, and mechanisms of their wheel. - Label their designs.	<u>Baby Bear's Chair</u> - Identify man-made and natural structures. - Identify stable and unstable structural shapes. - Contribute to discussions. - Identify features that make a chair stable.

	Construct a wrap that meets the design brief and their plan. Kapow link Cooking and nutrition: A balanced diet – Kapow Primary Visit to the cookery room: Autumn 1, Week 4, and 5	- Build a stable structure with a rotating wheel. - Test and adapt their designs as necessary. - Follow a design plan to make a completed model of the wheel. Kapow link Mechanisms: Fairground wheel – Kapow Primary	- Work independently to make a stable structure, following a demonstration. - Explain how their ideas would be suitable for Baby Bear. - Produce a model that supports a teddy, using the appropriate materials and construction techniques. - Explain how they made their model strong, stiff, and stable. Kapow link Structures: Baby Bear's chair - Kapow Primary
	Autumn Food Technology	Spring Mechanisms	Summer Structures
Year 3	<u>Cooking and Nutrition: Eating Seasonally</u> - Explain that fruits and vegetables grow in different countries based on their climates. - Understand that 'seasonal' fruits and vegetables are those that grow in each season and taste best then.	<u>Mechanical Systems: Pneumatic Toys</u> - Draw accurate diagrams with correct labels, arrows, and explanations. - Correctly identify definitions for key terms. - Identify five appropriate design criteria. - Communicate two ideas using thumbnail sketches.	<u>Castles</u> - Draw and label a simple castle that includes the most common features. - Recognise that a castle is made up of multiple 3D shapes. - Design a castle with key features which satisfy a given purpose.

	• Know that eating seasonal fruit and vegetables has a positive effect on the environment. • Design their own tart recipe using seasonal ingredients. • Understand the basic rules of food hygiene and safety. • Follow the instructions within a recipe. Kapow link Cooking and nutrition: Eating seasonally - Kapow Primary Visit to the cookery room: Autumn 1, week 6 and 7	• Communicate and develop one idea using an exploded diagram. • Select appropriate equipment and materials to build a working pneumatic system. • Assemble their pneumatic system within the housing to create the desired motion. • Create a finished pneumatic toy that fulfils the design brief. Kapow link Mechanical systems: Pneumatic toys - Kapow Primary	• Score or cut along lines on the net of a 2D shape. • Use glue to securely assemble geometric shapes. • Utilise skills to build a complex structure from simple geometric shapes. • Evaluate their work by answering simple questions. Kapow link D&T Structures: Constructing a castle KS2 - Kapow Primary
	Autumn Food Technology	Spring Mechanisms	Summer Structures
Year 4	<u>Cooking and Nutrition</u> Adapting a recipe • Follow a recipe, with some support. • Describe some of the features of a biscuit based on taste, smell, texture, and appearance. • Adapt a recipe by adding extra ingredients to it. • Plan a biscuit recipe within a budget. Kapow link Cooking and nutrition: Adapting a recipe - Kapow Primary	<u>Electrical Systems: Torches</u> • Identify electrical products and explain why they are useful. • Help to make a working switch. • Identify the features of a torch and how it works. • Describe what makes a torch successful. • Create suitable designs that fit the success criteria and their own design criteria.	<u>Pavilions</u> • Produce a range of free-standing frame structures of different shapes and sizes. • Design a pavilion that is strong, stable, and aesthetically pleasing. • Select appropriate materials and construction techniques to create a stable, free-standing frame structure.

	Visit to the cookery room: Autum 2 week 1 and 2	Create a functioning torch with a switch according to their design criteria. Kapow link Electrical systems: Torches - Kapow Primary	Select appropriate materials and techniques to add cladding to their pavilion. Kapow link Structure: Pavilions - Kapow Primary
	Autumn Food Technology	Spring Mechanisms	Summer Structures
Year 5	<u>Cooking and Nutrition What Could Be Healthier?</u> - Understand how beef gets from the farm to our plates. - Present a subject as a poster with clear information in an easy-to-read format. - Contribute ideas as to what a 'healthy meal' means. - Notice the nutritional differences between different products and recipes. - Recognise nutritional differences between two similar recipes and give some justification as to why this is.	<u>Electrical systems: Doodlers</u> - Identify simple circuit components (battery, bulb, and switch) with a basic explanation of their function. - Explain that a series circuit is assembled in a loop to allow the electricity to flow along one path. - Describe a motor as a circuit component that changes electrical energy into movement. - Provide examples of motorised products that use movement to rotate or spin different parts.	<u>Bridges</u> - Identify stronger and weaker shapes. - Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. - Identify beam, arch and truss bridges and describe their differences. - Use triangles to create simple truss bridges that support a load (weight). - Cut beams to the correct size, using a cutting mat. - Smooth down any rough-cut edges with sandpaper.

	• Work as a team to amend a Bolognese recipe with healthy adaptations. • Follow a recipe to produce a healthy Bolognese sauce. • Design packaging that promotes the ingredients of the Bolognese. Kapow link Cooking and nutrition: What could be healthier? – Kapow Primary Visit to the cookery room: Autumn 2, Week 3 and 4	• Remove and replace different parts of a Doodler, as part of a team. • Suggest ways to switch the configuration to amend the form or function of the Doodler. • Create a functional Doodler that creates scribbles on paper with or without a switch. • Identify and list each of the required materials, tools and circuit components required to build a Doodler. • Explain simply, the steps to assemble a Doodler as part of a set of instructions (or storyboard). Kapow link Electrical systems: Doodlers - Kapow Primary	• Follow each stage of the truss bridge creation as instructed by their teacher. • Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher. • Identify some areas for improvement, reinforcing their bridges as necessary. Kapow link D&T KS2 Structure: Bridges - Kapow Primary
	Autumn Food Technology	Spring Mechanisms	Summer Structures
Year 6	<u>Cooking and Nutrition Come Dine with Me</u> • Find a suitable recipe for their course. • Record the relevant ingredients and equipment needed. • Follow a recipe, including using the correct quantities of each ingredient. • Write a recipe, explaining the process taken. • Explain where certain key foods come from before they appear on the supermarket shelf. Kapow link Cooking and nutrition: Come dine with me - Kapow Primary	<u>Electrical Systems: Steady Hand Game</u> • Explain simply what is meant by ‘form’ (the shape of a product) and ‘function’ (how a product works). • State what they like or dislike about an existing children’s toy and why. • Learn about skills developed through play and apply this knowledge in a survey of one or more children’s toys. • Identify the components of a steady hand game. • Design a steady hand game of their own according to their design criteria, using four different perspective drawings.	<u>Playgrounds</u> • Create five apparatus designs, applying the design criteria to their work. • Make suitable changes to their work after peer evaluation. • Make roughly three different structures from their plans using the materials available. • Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. • Secure their apparatus to a base.

Visit to the cookery room: Autumn 2 Week 5 and 6

- Create a secure base for their game, with neat edges, that relates to their design.
- Make and test a functioning circuit and assemble it within a case.

Kapow link [Electrical systems: Steady hand game - Kapow Primary](#)

- Make a range of landscape features using a variety of materials which will enhance their apparatus.

Kapow link [Structure: Playgrounds - Kapow Primary](#)