



Kapow
Primary

Ready to Progress in Design and Technology
**Design is not just what it looks and feels like.
Design is how it works.**
Steve Jobs

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Structures

Reception	- To understand what waterproof means and to test whether materials are waterproof. - To test and make predictions for which materials float or sink. - To compare the use of boats. - To investigate how the shape and structure of boats affects the way that they move. - To design a boat. - To create a boat based upon own design.
Year 1	- To include individual preferences and requirements in my design. - To make a stable structure. - To assemble the components of my structure. - To evaluate my project and adapt my design
Year 2	- To explore the concept and features of structures and the stability of different shapes - To understand that the shape of the structure affects its strength. - To make a structure according to design criteria. - To produce a finished structure and evaluate its strength, stiffness and stability.

Year 3	To recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure. To design a castle. To construct 3D nets. To construct and evaluate my final product.
Year 4	To create a range of different shaped frame structures. To design a structure. To build a frame structure. To add cladding to a frame structure.
Year 5	To explore how to reinforce a beam (structure) to improve its strength. To build a spaghetti truss bridge. To build a wooden truss bridge. To complete, reinforce and evaluate my truss bridge.
Year 6	To design a playground with a variety of structures. To build a range of structures. To improve and add detail to structures. To create a surrounding landscape.
Textiles	
Reception	To develop threading and weaving skills. To practise and apply weaving skills to a specific material e.g., paper. To practise and apply threading skills with specific materials e.g., hessian and wool. To use threading or sewing to design a product.

	To create a textiles product following own design. To reflect with other children on how they have achieved their aims.
Year 1	To join fabrics together using different methods. To use a template to create my design. To join two fabrics together accurately. To embellish my design using joining methods.
Year 2	To sew a running stitch. To join two fabrics using a running stitch. To decorate a pouch using fabric glue or stitching.
Year 3	To learn how to sew cross-stitch and to appliqué. To develop and use a template. To assemble fabric parts into a fabric product. To decorate fabric using appliqué and cross-stitch.
Year 4	To explain the advantages and disadvantages of different types of fastening type. To design a product to meet design criteria. To make and test a paper template. To assemble a book jacket.
Year 5	To design a stuffed toy. To sew a blanket stitch. To create and add decorations to fabric. To use a blanket stitch to assemble the components of a stuffed toy.

Year 6	To make a design. To mark and cut fabric according to design. To assemble a product. To decorate a product.
Mechanisms	
Reception	To explore a simple slider paper mechanism as part of a practical example and then apply it to their own sliding picture.
Year 1	To explore making mechanisms. To design a moving storybook. To construct a moving picture. To evaluate my finished product. To include individual preference and requirements in my design. To make a stable structure. To assemble the components of my structure. To evaluate my project and adapt my design.
Year 2	To explore wheel mechanisms and design a Ferris wheel. To select appropriate materials. To build and test a moving wheel. To make and evaluate a structure with a rotating wheel. To look at objects and understand how they move.

	To explore different design options. To make a moving monster.
Year 3	To understand how pneumatic systems work. To design a toy that uses a pneumatic system. To create a pneumatic system. To test and finalise ideas against design criteria.
Year 4	To build a car chassis. To design a shape that reduces air resistance. To make a model based on a chosen design. To assemble and test my completed product.
Year 5	To design a pop-up book. To follow my design brief to make my pop-up book. To use layers and spacers to cover the working of mechanisms. To create a high-quality product suitable for a target user.
Year 6	To prepare wood for assembly by measuring, marking and cutting each piece. To assemble the automata frame components and supports with the help of an exploded diagram. To explore the relationship between cam profiles and follower movement to inform a design decision. To apply the housing and finishing touches to the automata frame.

Cooking and Nutrition

Reception

- To explore fruits and vegetables and the differences between them.
- To explore fruit and vegetable and describe it using the five senses.
- To design a fruit and vegetable soup recipe.
- To learn how to use a knife safely.
- To safely use tools to prepare ingredients.
- To design food packaging.

Year 1

- To identify fruits.
- To describe where fruits and vegetables grow.
- To practise food preparation skills.
- To select ingredients for a recipe.
- To apply food preparation skills to a recipe.
- To evaluate against the design brief.

Year 2

- To recognise foods and their food groups.
- To identify the balance of food groups in a meal.
- To identify an appropriate piece of equipment to prepare a given food.
- To select balanced combinations of ingredients.
- To design based on criteria.
- To evaluate a dish based on design criteria.

Year 3	To explain why food comes from different places around the world. To explain the benefits of seasonal foods. To develop cutting and peeling skills. To evaluate seasonal ingredients To design a mock-up using criteria. To evaluate a dish.
Year 4	To evaluate existing biscuit products. To prepare and cook a dish. To select ingredients and follow a budget. To take inspiration from existing products. To make and test a prototype biscuit. To evaluate a final product.
Year 5	To understand how ingredients are reared and processed. To make adaptations to design a recipe. To evaluate nutritional content. To design a product label To follow and make an adapted recipe.
Year 6	To explain the use of complementary flavours. To research and design a three-course meal. To explain recipe choices. To apply culinary skills and knowledge.

Electrical Systems

Year 3	To understand the purpose of information design. To research a set topic to develop a range of initial ideas. To assemble my final product and incorporate a simple circuit.
Year 4	To learn about electrical items and how they work. To analyse and evaluate electrical products. To design a product to fit a set of specific user needs. To make and evaluate a torch.
Year 5	To understand how motors are used in electrical products. To investigate an existing product to determine the factors that affect the product's form and function. To apply the findings from research to develop a unique product. To develop a DIY kit for another individual to assemble their product.
Year 6	To research and analyse a range of children's toys. To design a steady hand game. To construct a stable base. To assemble electronics and complete their electronic game.
Digital World	
Year 3	To research and evaluate existing products. To develop design criteria. To use code to program and control a product. To develop and communicate ideas.

	To develop ideas through computer-aided design. To improve a design based on feedback.
Year 4	To evaluate existing products. To develop design criteria. To program and control a product. To develop and communicate ideas. To develop ideas through computer-aided design. To consider feedback and evaluate.
Year 5	To carry out research to develop design criteria. To write a program to monitor the ambient temperature, including an alert. To generate creative and unique micro:bit case, stand or housing ideas. To learn about and practise 3D CAD skills.
Year 6	To write a design brief and criteria based on a client request. To write a program to include multiple functions as part of a navigation device. To develop a sustainable product concept. To develop 3D CAD skills to produce a virtual model. To present a pitch to 'sell' the product to a specified client.