

St. George's CE First School and Nursery

Long Term Progression DT



Our children solve problems by using:	We use the Kapow Long-Term Plan for Art and Design and Design and Technology.
- a range of techniques	Our Art and Design focusses on Painting, Drawing and Sculpture.
- a knowledge of past and present design	Half terms are primarily Art and Design or Design and Technology with some additional lessons to
- their creativity and imagination	ensure curriculum coverage and enriching opportunities mapped in.

	Design	Make	Evaluate	Technical Knowledge
Reception	Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials. Designing a junk model boat. • Using knowledge from exploration to inform design. Making verbal plans and material choices. • Developing a junk model.	Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading. Making a boat that floats and is waterproof, considering material choices. • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of materials together. • Describing their junk model, and how they intend to put it together	Reflecting on a finished product and comparing to their design. Making predictions about, and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves. Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model	To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object To know that 'waterproof' materials are those which do not absorb water To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model.
Year 1	Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design Designing smoothie carton packaging by-hand or on ICT software. Using a template to create a design for a puppet.	Making stable structures from card, tape and glue • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure. Chopping fruit and vegetables safely to make a smoothie. • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow. Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.	Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. • Suggest points for improvements. Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. Reflecting on a finished product, explaining likes and dislikes.	To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that

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				a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).
				 To know that 'joining technique' means connecting two pieces of material together. To know that there are various temporary methods of joining fabric by using staples. glue or pins. To understand that different techniques for joining materials can be used for different purposes. To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. To know that drawing a design idea is useful to see how an idea will look.
Year 2	Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. 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. Designing a healthy wrap based on a food combination which works well together.	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. 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. Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief.	 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. Evaluating different designs. • Testing and adapting a design. Evaluating own designs against design criteria. • Using peer feedback to modify a final design. 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. 	 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 break easily. • To know that a 'stiff' structure or material is one which does not bend easily. 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 lever is something that turns on a pivot. • To know 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'.
Year 3	Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. • Designing and/or decorating a castle tower on CAD software. Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. Problem solving by suggesting potential features on a Micro: bit and justifying my ideas. • Developing design ideas for a technology pouch. • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.	Constructing a range of 3D geometric shapes using nets . • Creating special features for individual designs. • Making facades from a range of recycled materials. Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe. Using a template when cutting and assembling the pouch. • Following a list of design requirements. • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch. • Applying functional features such as using foam to create soft buttons.	Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs. Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart. Analysing and evaluating an existing product. • Identifying the key features of a pouch.	To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures. To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food which has been brought into the country. • To know that exported food is food which has been sent to another country • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits. To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. • To know that a Micro:bit is a pocket-sized, codeable computer.
Year 4	Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight	Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and cladding. •	 Evaluating structures made by the class. Describing what characteristics of a design and construction made it the most effective. Considering effective and ineffective designs. 	To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.

Designing a torch, giving consideration to the target audience and creating both design and	Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with	Evaluating electrical products. • Testing and evaluating the success of a final product.	To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.
of individual design ideas. Designing a shape that reduces air resistance. • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising	Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria.	Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.
a design.	Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.		