SUBJECT: Desig	esign Technology		
	Autumn	Spring	Summer
EYFS	Topic Title: Autumn craft – Nature wreaths	Topic Title: Spring craft – Petal mandala suncatchers	Topic Title: Summer – Designing a rainbow salad
	EYFS outcomes:	EYFS outcomes:	EYFS outcomes:
	 Understanding the world: Explore the natural world around them. Understand the effect of changing seasons on the natural world around them. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Expressive arts and design: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Characteristics of effective learning: Playing and exploring. Key vocabulary: nature, hunt, autumnal, wreaths, create, attach, wool, string, tie, hang, patterns 	 Physical development: Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use a range of small tools, including scissors, paint brushes and cutlery. Expressive arts and design: Explore, use and refine a variety of artistic effects to express their ideas and feelings. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Characteristics of effective learning: Playing and exploring. Key vocabulary: mandala, pattern, suncatcher, colour, spring, symbolism 	 Communication and language: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduce vocabulary. Learn new vocabulary Personal, social and emotional development Know and talk about the different factors that support their overall health and wellbeing. Manage their own basic hygiene and personal needs, includingunderstanding the importance of healthy food choices. Understanding the world Explore the natural world around them. Explore the natural world around them, making observations and drawing pictures of animals and plants. Characteristics of effective learning Key vocabulary: Balanced diet, fruits, vegetables, rainbow salad, health, safety, design, knife
Year 1	Topic Title: Structures – Constructing a windmill	Topic Title: Textiles - Puppets	Topic Title: Food – Fruit and vegetables
	 Key knowledge: 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. To understand that axles are used in structures and mechanisms to make parts turn in a circle. 	 Key knowledge: 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. 	 Key knowledge: To understand the different between fruits and vegetables. To understand that some foods typically known as vegetables are actually fruits. To know that a blender is a machine which mixes ingredients together into a smooth liquid. To know that fruit has seeds and a vegetable does not. To know that fruits grow on trees or vines.

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	 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. Key Skills: Learn the importance of a clear design criteria. Include preferences and requirements. Make stable structures. Learn how to turn 2D nets into 3D structures. Follow instructions to cut and assemble. Make functioning turbines and axles. Key vocabulary: axle, design, model, packaging, template, stable, bridge, design criteria, net, structure, unstable, strong, weak 	 To know that drawing a design idea is useful to see how an idea will look. Key Skills: Use a template to create a design for a puppet. Cut fabric neatly with scissors. Use joining methods to decorate a puppet. Sequence steps for construction. Reflect on a finished product, explaining likes and dislikes. Key vocabulary: Decorate, fabric, model, safety pin, stencil, design, glue, hand puppet, staple, template 	 To know that vegetables can grow either above or below ground. To know that vegetables can come from different parts of the plant. Key Skills: Design smoothie carton packaging by-hand or on ICT software. Chop fruit and vegetables safely to make a smoothie. Identify if a food is a fruit or a vegetable. Learn where and how fruits and vegetables grow. Taste and evaluate different food combinations. Describe appearance, smell and taste. Suggest information to be included on packaging. Key vocabulary: Fruit, seed, root, smoothie, carton, flavour, vegetable, leaf, stem, healthy, design, peel, slice
Year 2	 Topic Title: Structures – Baby bear's chair Key knowledge: 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 'storng' structure is one which does not break easily. To know that a 'stiff' structure or material is one which does not bend easily. Key Skills: Generate and communicate ideas using sketching and modelling. 	Topic Title: mechanisms – Fairground wheel Key knowledge: • To know that different materials have different properties and are therefore suitable for different uses. • To know the features of a Ferris wheel, include the wheel, frame, pods, a base, an axle and an axle holder. • To know that is it important to test my design as I go along so that I can solve any problems that may occur. Key Skills: • Select a suitable linage system to produce the desired motion. • Design a wheel. • Select appropriate materials based on their properties. • Select appropriate materials based on their characteristics. • Follow a design brief. • Evaluate different designs.	 Topic Title: mechanisms – Making a moving monster Key knowledge: 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 an 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. Key Skills: Create a design criteria for a moving monster as a class. Design a moving monster for a specific audience in accordance with a design criteria.

 Learn about different types of structures, found in the natural world and in everyday objects. Make a structure according to design criteria. Create joints and structures from paper/card and tape. Build a strong and stiff structure by folding paper. Explore the features of structures. Compare the stability of different shapes. Test the strength of their structure. Evaluate the strength, stiffness and stability of their own structure. Key vocabulary: design criteria, natural, structure, shape, man-made, properties, stable, model, test 	Test and adapt a design. Key vocabulary: design, wheel, pods, axle holder, design criteria, Ferris wheel, axle, frame, mechanism	 Make linkages using card for levers and split pins for pivots. Experiment with linkages adjusting the widths, lengths and thicknesses of card used. Cut and assemble components neatly. Evaluate own designs against design criteria. Use peer feedback to modify a final design. Key vocabulary: axle, input, mechanical, pivot, design criteria, linkage, output, wheel
 Year 3 Topic Title: Cooking and nutrition: Eating seasonally Key knowledge: 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 that has been brought into the country. Key Skills: Create a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. Know how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination. Follow the instructions within a recipe. Establish and use design criteria to help test and review dishes. 	 Topic Title: textiles: Egyptian collars Key knowledge: To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric. To understand that a product's function relies on material choices. To identify and explain some materials and explain their aesthetic and/or functional properties. Key Skills: Design and make a template for an Egyptian collar and apply individual design criteria. Follow their design criteria to create an Egyptian collar. Select and cut fabrics with ease using fabric scissors. Thread needles with greater independence. Sew cross stitch to decorate or join fabric. Decorate fabric using applique, beads (or other embellishments), ribbon and pinking scissors. Evaluate an end product. 	 Topic Title: structures: Constructing a castle Key knowledge: To understand that wide and flat based objects are more stable. To understand the importance of strength and stiffness in structures. To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose. To know that a façade is the front of a structure. To understand that a castle needed to be strong and stable to withstand enemy attack. Key Skills: Design a castle with key features to appeal to a specific person/purpose. Draw a label a castle design using 2D shapes. Design and/or decorate a castle tower on CAD software. Construct a range of 3D geometric shapes using nets. Create special features from a range of recycled materials.

	 Describe the benefits of seasonal fruits and vegetables and the impact on the environment. Suggest points for improvement when making a seasonal tart. Key vocabulary: climate, imported, natural, reared, seasonal, diet, ingredients, processes, recipe, seasons, sugar 	applique, fabric, patch, embellish, cotton, polyester, tear, breathable, shiny, cross-stitch, running stitch, thread, template, silk, wrinkle, water-resistant, matt, biodegrade, pinking	 Evaluate their own work and the work of others based on the aesthetic of the finished product and in comparison, to the original design. Suggest points for modification of the individual design. Key vocabulary: 2D, 3D, castle, design, evaluate, façade, feature, flag, net, recyclable, scoring, stable, strong, structure, tab, weak
Year 4	Topic Title: Structure: Pavilions	Topic Title: Mechanical systems: making a slingshot car	Topic Title: Cooking and nutrition: Adapting a recipe
	 Key knowledge: To understand what a frame structure is. To know that a 'free-standing' structure is one that can stand on its own. To know that a pavilion is a decorative building or structure for leisure activities. To know that cladding can be applied to structures for different effects. To know that aesthetics are how a product looks. Key Skills: Design a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. Build frame structures designed to support weight. Create a range of different shaped frame structures. Make a variety of free-standing frame structures. Select appropriate materials to build a strong structure and for the cladding. Reinforce corners to strengthen a structure. Create a design in accordance with a plan. Learn to create different textural effects with materials. 	 Key knowledge: To understand that all moving things have kinetic energy. To understand that kinetic energy is the energy that something (object/person) has by being in motion. 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 moved due to air resistance. Draw a net to create a structure from. Choose shapes that increase or decrease speed as a result of air resistance. Personalise a design. Measure, mark, cut, and assemble with increasing accuracy. Make a model based on a chosen design. Evaluate the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance. Key vocabulary: chassis, energy, kinetic, mechanism, air resistance, design, structure, graphics, research, model template 	 Key knowledge: To know that the amount of an ingredient in a recipe is known as the 'quantity'. To know that it is important to use oven gloves when removing hot food from an oven. To know the following cooking techniques: sieving, creaming, rubbing method, cooling. To understand the importance of budgeting while planning ingredients for biscuits. Key Skills: Design a biscuit within a given budget, drawing upon previous taste testing. Follow a baking recipe. Cook safely, following basic hygiene rules. Adapt a recipe. Evaluate a recipe, considering: taste, smell, texture and appearance. Describe the impact of the budget on the selection of ingredients. Evaluate and compare a range of products. Suggest modifications. Key vocabulary: design criteria, texture, aesthetic, cross-contamination, processed, research, innovative, measure, diet, packaging

	stable, structure, target audience, target customer, texture, theme.		
Year 5	 Topic Title: Mechanical systems: Making a pop-up book Key knowledge: To know that mechanisms control movement. To understand that mechanisms can be used to change on kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms. To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing. Key Skills: Design a pop-up book which uses a mixture of structures and mechanisms. Name each mechanisms, input and output accurately. Storyboard idea for a book. Make mechanisms and/or structures using sliders, picots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. Evaluate the work of others and receive feedback on own work. Suggest points for improvement. Key vocabulary: design, reinforce, input, mechanism, research, model 	 Topic Title: Textiles: Stuffed toys Key knowledge: To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. To understand that it is easier to finish simpler designs to a high standard. To know that soft toys are often made by creating appendages separately and then attaching them to the main body. To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely. Key Skills: Design a stuffed toy considering the main component shapes required and create an appropriate template. Consider the proportions of individual components. Create a 3D stuffed toy from a 2D design. Measure, mark and cut fabric accurately and independently. Create strong and secure blanket stitches when joining fabric. Thread needles independently. Use applique to attach pieces of fabric decoration. Sew blanket stitch to join fabric. Apply blanket stitch so the space between the stitches are even and regular. Test and evaluate an end product and give points for further improvements. Key vocabulary: accurate, appendage, design criteria, evaluation, sew, stuffed toy, annotate, blanket-stitch, detail, fabric, shape, stuffing, template 	 Topic Title: Cooking and nutrition: What could be healthier? Key knowledge: To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients. To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. Key Skills: Adapt a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute, or add additional ingredients. Write an amended method for a recipe to incorporate the relevant changes to ingredients. Design appealing packaging to reflect a recipe. Cut and prepare recipes safely. Use equipment safely, including knives, hot pans, and hobs. Know how to avoid cross-contamination. Follow a step-by-step method carefully to make a recipe. Identify the nutritional differences between different products and recipes. Identify and describe healthy benefits of food groups. Key vocabulary: beef, processed, diet, supermarket, reared, ethical, ingredients, farm, balanced
Year 6	Topic Title: Textiles: Waistcoats Key knowledge:	Topic Title: Structure: Playgrounds Key knowledge:	Topic Title: Electrical systems: Steady hand game Key knowledge:

- To understand that it is important to design clothing with the client/target customer in mind.
- To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.
- To understand the importance of consistently sized stitches.

Key Skills:

- Design a waistcoat in accordance with a specification and design criteria to fit a specific theme.
- Annotate designs.
- Use a template when pinning panels onto fabric.
- Mark and cut fabric accurately, in accordance with a design.
- Sew a strong running stitch, making small, neat stitches and following the edge.
- Tie strong knots.
- Decorate a waistcoat attaching objects using thread and adding a secure fastening.
- Learn different decorative stitches.
- Sew accurately with even regularity of stitches.
- Evaluate work continually as it is created.

Key vocabulary:

annotate, design criteria, target customer, decorate, fabric, waistcoat, waterproof

- To know that structures can be strengthened by manipulating materials and shapes.
- To understand what a 'footprint plan' is.
- To understand that in the real world, design can impact users in positive and negative ways.
- To know that a prototype is a cheap model to test a design idea.

Key Skills:

- Design a playground featuring a variety of different structure, giving consideration to how the structures will be used.
- Consider effective and ineffective designs.
- Build a range of play apparatus structures drawing upon new and prior knowledge of structures.
- Measure, mark and cut wood to create a range of structures.
- Use a range of materials to reinforces and add decoration to structures.
- Improve a design plan based on peer evaluation.
- Test and adapt a design to improve it as it is developed.
- Identify what makes a successful structure.

Key vocabulary:

Apparatus, equipment, landscape features, design criteria, playground, cladding

- To know that 'form' means the shape and appearance of an object.
- To know the difference between 'form' and 'function'.
- To understand that 'fit for purpose' means that a product works how it should and is easy to use.
- To know that 'form over purpose' means that product looks good but does not work very well.
- To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.
- To understand the diagram perspectives 'top view', 'side view' and 'back'.

Key Skills:

- Design a steady hand game, identifying and naming the components required.
- Draw a design from three different perspectives.
- Generate ideas through sketching and discussion.
- Model ideas through prototypes.
- Understand the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.
- Construct a stable base for a game.
- Accurately cut, fold and assemble a net.
- Decorate the base of the game to a high-quality finish.
- Incorporate a circuit into a base.
- Test their own and others' finished games, identifying what went well and make suggestions for improvement.
- Gather images and information about existing children's toys.
- Analyse a selection of existing children's toys.

Key vocabulary:

Assemble, battery, battery pack, benefit, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, fine motor skills, fit for purpose, form, function, gross motor skills, insulator, LED, user