DESIGN TECHNOLOGY PROGRESSION OF KNOWLEDGE AND SKILLS – NURSERY TO YEAR 2

NURSERY	COOKING AND NUTRITION	STRUCTURES	MECHANISMS
THEME	Gingerbread men Porridge Fruit kebabs	Junk Modelling	To use wind up and friction toys.
EYFS FRAMEWORK Development Matters	Willing to try a range of different textures and taste and expresses a preference. (PD) Make healthy choices about food and drink. (PD & PSED) Eats a healthy range of foodstuffs and understands need for variety in food. (PD) Use one-handed tools and equipment, for example, making snips in paper with scissors (PD)	Uses tools for a purpose (PD) Uses various construction materials (EAD) Explore different materials freely in order to develop their ideas about how to use them and what to make (EAD) Develop their own ideas and then decide which materials to use to express them (EAD) Join different materials and explore different textures (EAD)	Shows an interest in technological with knob or pulleys (UtW) Shows skills in making toys work by pressing parts or lifting flaps to achieve effects such as movement (UtW) Plays with a range of materials to learn cause and effect eg. Pulling the string on a puppet to make arms move (UtW)
CONTENT	In this unit children will make Shape biscuits, Gingerbread man and fruit kababs. They will begin to name various fruits and vegetables.	In this unit, pupils explore and learn about various types of joins. They are encouraged to use a combination of materials and joining techniques in the junk modelling area.	In this unit children are encouraged to explore a range of toys to see how they work.
SKILLS	To begin to sort between healthy and unhealthy food. To use one-handed tools e.g. a knife, fork and spoon effectively.	Able to safely use tools like scissors and tweezers Experiments with creating models using different materials, talking about what they are going to make before or during the process	Explore, use and refine a variety of artistic effects to express their ideas and feelings
KEY KNOWLEDGE	Children will know: • To name a fruit and vegetable. • To use the correct tool with a purpose in mind.	Children will know: • How to create a design • How to join materials together	Children will know: • With support safely use and explore a variety of materials, tools and techniques • With support select appropriate materials
NEW VOCAB	Knife, fork, spoon, healthy, unhealthy, cut, taste, fruit, vegetable	Design, Make, Evaluate	Slide, pull,

RECEPTION	COOKING AND NUTRITION	STRUCTURES	MECHANISMS
TOPIC/THEME	Pumpkin Soup	Junk Modelling	Christmas: Sliding Santa Chimney
EYFS FRAMEWORK	• ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary (CL) • Use a frame of small tools, cutlery (PD) Understand some important processes including states of matter (UtW) • ELG: The Natural World: Explore the natural world around them, making observations and drawing pictures of animals and plants (UtW) • ELG: Manage their own basic hygiene and personal needs and understand the importance of healthy food choices (PSED) • ELG: Creating with materials**:** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD)	• ELG: Fine Motor Skills: Use a range of small tools, including scissors and paint brushes. • Explore, use and refine a variety of artistic effects to express ideas and feelings. (EAD) • ELG: Creating with Materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) • Explore, use and refine a variety of artistic effects to express ideas and feelings. (EAD) • Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD) • Create collaboratively, sharing ideas, resources and skills (EAD) • ELG: Creating with Materials: Share their creations, explaining the process they have used. (EAD)	• ELG: Creating with Materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • ELG: Creating with Materials: Share their creations, explaining the process they have used. • ELG: Creating with Materials: Make use of props and materials when role playing characters in narratives and stories
CONTENT	In this unit, children explore the differences between fruits and vegetables using their senses (taste, texture, smell etc.). They listen to the story 'The best pumpkin soup' and discuss the key ingredients the characters used before developing a class-based vegetable soup recipe.	In this unit, pupils explore and learn about various types of permanent and temporary join. They are encouraged to use a combination of materials and joining techniques in the junk modelling area.	Children explore a simple paper slider mechanism as part of a practical example and then apply it to create their own sliding Santa chimney picture.
SKILLS	To use one-handed tools e.g. a knife, fork and spoon effectively. To begin to Identify if a food is a fruit or a vegetable. To plant, grow and harvest vegetables.	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.	Return to and build on their previous learning, refining ideas and developing their ability to represent them. Share their creations, explaining the process they have used.
KEY KNOWLEDGE	Children will know: • Begin to know how to use the correct tool, with a purpose in mind and safely. • Begin to know that fruit and vegetables are healthy foods and name 3 of each.	Children will know: • How to talk about their design and finished model, explaining what they have included and why	Children will know: • How to decide upon an appropriate length and width for their chimney • How to identify problems as they work, solving them as they go

	• Begin to know the difference between a fruit and a vegetable.		• How to safely use and explore a variety of materials, tools and techniques
RETRIEVAL/ PRIOR LINKS	Children will have sorted between healthy and unhealthy food. They will have been introduced to various fruits and vegetables.	Children will have had the opportunity to develop their own ideas, exploring different joins and materials.	Children will have explored various moving objects with support.
NEW VOCAB (REMEMBER TO RECALL PREVIOUS VOCAB)	Fruit, vegetable, pumpkin, seed, healthy, design, slice, mix , stir	Design, Make, evaluate	Tall, Wide, Top , slide, test, attach,

YEAR 1	COOKING AND NUTRITION	STRUCTURES	MECHANISMS
THEME	Making smoothies	Constructing a windmill	Making a story book Wheels and axles
NC OBJECTIVES	• Use the basic principles of a healthy and varied diet to prepare dishes. • Understand where food comes from.	**Design** • 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 **Make** • 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 Evaluate **Evaluate** • 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.	
CONTENT Kapow Primary	Learn to distinguish between fruit and vegetables and where they grow. Design a fruit and vegetable smoothie and accompanying packaging	Inspired by the song, 'Mouse in a windmill', design and construct a windmill for a client (mouse) to live in. Explore various types of windmill, how they work and their key features	Explore slider mechanisms and the movement they output, to design, make and evaluate a moving storybook from a range of templates Learn about the key parts of a wheeled vehicle, to develop an understanding of how wheels, axles and axle holders work. Design and make a moving vehicle.
SKILLS	• Designing smoothie carton packaging by-hand or on ICT software. • 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. • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design. • 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.	• Designing a moving story book for a given audience. • Following a design to create moving models that use levers and sliders. • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience. • Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move.

			• Creating clearly labelled drawings that illustrate movement. • Adapting mechanisms. • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move
KEY KNOWLEDGE	Children will know: • understand the difference between fruits and vegetables. • understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • that a blender is a machine which mixes ingredients together into a smooth liquid. • that a fruit has seeds and a vegetable does not. • that fruits grow on trees or vines. • that vegetables can grow either above or below ground. • that vegetables can come from different parts of the plant.	Children will know: • that the shape of materials can be changed to improve the strength and stiffness of structures. • that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses). • that axles are used in structures and mechanisms to make parts turn in a circle. • that different structures are used for different purposes. • that a structure is something that has been made and put together.	Children will know: • that a mechanism is the parts of an object that move together. • that a slider mechanism moves an object from side to side. • How to design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. • How to create clearly labelled drawings that illustrate movement. • How to test mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move • How a slider mechanism has a slider, slots, guides and an object. • That bridges and guides are bits of card that purposefully restrict the movement of the slider. Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement. • Adapting mechanisms. • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move
RETRIEVAL/ PRIOR LINKS	Children will know the of different fruit and vegetables. They will have previously made pumpkin soup and vegetable kebabs. They will have had the opportunity to plant, grow and harvest.	Children have had lots of opportunity to design their own junk models, selecting various materials and exploring different joins. They will also have been supported in evaluating their designs.	Children will have made a sliding Santa going up and down a chimney. They will have had to decide on the appropriate width to enable the Santa to slide.
NEW VOCAB (REMEMBER TO RECALL PREVIOUS VOCAB)	Fruit, vegetable, seed, leaf, root, stem, smoothie, healthy, carton, design, flavour, peel, slice	Bridge, design criteria, model, net, packaging, structure, template, unstable, stable, strong, weak	Sliders, mechanism, adapt, input, model, assemble, test axle, chassis, diagram, dowel, equipment, wheel

YEAR 2	COOKING AND NUTRITION	STRUCTURES	MECHANISMS
THEME	Designing and making a wrap	Baby bears chair	Fairground Wheel Making a moving monster
NC OBJECTIVES	• Use the basic principles of a healthy and varied diet to prepare dishes. • Understand where food comes from.	**Design** • 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 Make **Make** • 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 Evaluate **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria Technical knowledge **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.	
CONTENT Kapow Primary	Learn about the food groups (carbohydrates, proteins, fruits and vegetables, dairy, oils and spreads) to understand a balanced diet to develop a healthy wrap	Explore stability and methods to strengthen structures, to understand Baby Bear's chair weaknesses and develop an improved solution for him to use	Explore levers, linkages and pivots through existing products and experimentation, use this research to construct and assemble a moving monster
SKILLS	• Designing a healthy wrap based on a food combination which works well together. • Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief. • 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.	• Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. • 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. • Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of their own structures. • Identifying the weakest part of a structure.	• Selecting a suitable linkage system to produce the desired motions. • Designing a wheel. • Selecting appropriate materials based on their properties. • Selecting materials according to their characteristics. • Following a design brief. • Evaluating different designs. • Testing and adapting a design • How to Creating a design criteria for a moving monster as a class. • Designing a moving monster for a specific audience in accordance with a design criteria.

		• Evaluating the strength, stiffness and stability of their own structure.	• 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. • Evaluating own designs against design criteria. • Using peer feedback to modify a final design
KEY KNOWLEDGE	Children will know: • that 'diet' means the food and drink that a person or animal usually eats. • what makes a balanced diet. • where to find the nutritional information on packaging. • that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • that I should eat a range of different foods from each food group, and roughly how much of each food group. • that nutrients are substances in food that all living things need to make energy, grow and develop. • that 'ingredients' means the items in a mixture or recipe. • that I should only have a maximum of five teaspoons of sugar a day to stay healthy. • that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'	Children will know: • How to generate and communicate ideas using sketching and modelling. • about different types of structures, found in the natural world and in everyday objects. • make a structure according to design criteria. • creating joints and structures from paper/card and tape. • How to build a strong and stiff structure by folding paper. • Exploring the features of structures. • How to compare the stability of different shapes. • How to test the strength of their own structures. • How to identify the weakest part of a structure. • How to evaluate the strength, stiffness and stability of their own structure.	Children will know: • that different materials have different properties and are therefore suitable for different uses. • the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder. • that it is important to test my design as I go along so that I can solve any problems that may occur • that mechanisms are a collection of moving parts that work together as a machine to produce movement. • that there is always an input and an output in a mechanism. • that an input is the energy that is used to start something working. • that an output is the movement that happens as a result of the input. • that a lever is something that turns on a pivot. • that a linkage mechanism is made up of a series of levers.
RETRIEVAL/ PRIOR LINKS	Children will be able to name some foods that come from plants and animals. Name simple tools and techniques used in cooking.	Children will know that the shape of materials can be changed to improve the strength and stiffness of structures. That different structures are used for different purposes and that a structure is something that has been made and put together.	Children will know that a mechanism is the parts of an object that move together and a slider mechanism moves an object from side to side.
NEW VOCAB (REMEMBER TO RECALL PREVIOUS VOCAB)	balanced diet, balance, carbohydrate, dairy, fruit, ingredients, oils, sugar, protein, vegetable	man-made, natural, properties, structure, stable shape, model, test	Axle, input, linkage, pivot, output, Ferris wheel, pods, axle holder, frame, mechanism