The Welbeck Federation
Design and Technology
Progression of Knowledge

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technical Knowledge and Skills	Through a range of continuous provision and focussed practical tasks: Know a range of joining methods non-specific to materials. Know a range of decorative components. Know methods for cutting safely.	Through a range of continuous provision and focussed practical tasks: Know a range of joining methods non-specific to materials. Know a range of decorative components. Know methods for cutting safely.	**Textiles- Puppets** Know how to do a running stitch. Know how to use pre cut/punched templates. Know a range of joining methods for textiles. Know a range of decorative components to add to textiles.	**Mechanisms:** Know that axles help wheels to move a vehicle. Know and identify mechanisms in everyday objects. Know that mechanisms are a collection of moving parts that work together. Structures Know that shapes and structures with wide, flat bases or legs are the most stable. Know that the shape of a structure affects its strength. To know that a 'strong' structure is one which does not break easily. To know that a 'stiff' structure or	**Structures - Paper engineering** Know that a lever is something that turns on a pivot. Know that a linkage is a system of levers that are connected by pivots. Know how to make a v fold mechanism. Know how to make a box fold mechanism.	**Electronics -Torches** Know how to make a simple electrical circuit. Know how to make a switch. Know that electricity flows through a circuit. Know how to connect and disconnect the flow of electricity. Know how to work safely when working with electricity.	**Structures and construction : Bridges** Know which shapes are the strongest for structures. Know that material choice can affect the strength of a structure. Know how to safely use a tenon saw with skill and accuracy. Know how to use a bench hook carefully.	**Textiles- Stuffed soft toy** Know how to sew a running stitch, with evenly spaced, neat stitches to join fabric. Know how to sew a running stitch, with evenly spaced, neat stitches to join fabric. Know how to create pattern pieces with a seam allowance. Know a range of decorative components to add to textiles with skill and accuracy.

				material is one which does not bend easily.				
Pillars								
Research and design	**Research** Know where to find examples or images to look at whilst making/modelling. **Design Specification:** Know what they want their model to be like and list any functions it might have. **Development and communication of ideas:** Know how to generate and model their ideas through drawings and be able to talk about it.	**Research** Know where to find examples or images to look at whilst making/modelling. **Design Specification:** Know what they want their model to be like and list any functions it might have. **Development and communication of ideas:** Know how to generate and model their ideas through drawings and be able to talk about it.	**Research** Know where to find examples of puppets. Know where to find examples of levers and sliders. Know different types of puppets. Know different types of sliders and levers in real life. Look at a range of existing products choose which they like and dislike giving some reasons why. **Design Specification:**	**Research** Know how to analyse existing mechanisms. **Look** at a range of existing products explain what they like and dislike about the products and why. **Design Specification:** With support, know how to design a purposeful, functional, appealing product for themselves and other users based on design criteria. **Development and**	**Research** Know that analysing how mechanisms work develops greater understanding. Know how to **investigate and analyse** existing products and processes against a criteria. **Design Specification:** Know that a design must meet a set criteria. **Development and communication of ideas:** Know about refining ideas and	**Research** Know that products have developed overtime and use this information to inform planning. Know that ideas from other influences can be used when designing. Know how to **investigate and analyse** existing products and know their environmental impact. **Design Specification:** Know that a product must meet a set criteria based	**Research** Know that designers can take designs from nature. Know how to **investigate and analyse** existing products and how well they have been made as well as methods of construction. **Design Specification:** Know that a product must meet a set criteria based on aesthetics, customer and function, cost, materials. **Development and communicatio**	**Research** Use market research to inform plans and ideas. Know that culture and society is considered in plans and designs. Know how to **investigate and analyse** existing products which are ground breaking and learn about inventors relevant to the project. **Design Specification:** Know that all aspects of a design must lead to the specific need/purpose.

			With support create a simple design criteria based on function and looks. **Development and communication of ideas:** Know how to generate, develop, model and communicate their ideas through drawing with simple labels and talking. Use ICT where appropriate to generate, develop, and communicate ideas.	**communication of ideas:** Know how to generate, develop, model, and communicate their ideas through talking, drawing, templates, mock-ups. Use ICT where appropriate to generate, develop, and communicate ideas.	developing plans. Communicate ideas in a range of ways, including by sketches and annotated drawings.	on aesthetics, customer and function. **Development and communication of ideas:** Know how to explain parts of their products and how they work. Know that original ideas may not work and can be adapted. Communicate ideas in a range of ways, including by sketches and detailed annotated drawings.	**n of ideas:** • Explain in detail how particular parts of their products work. Know that original ideas may not work and can be adapted explaining why. Communicate ideas in a range of ways including photos, sketches, annotated drawings, and researched examples. Plan the sequence of work using a storyboard	Know how to identify and solve design problems. **Development and communication of ideas:** Follow and refine original plans, explaining the rationale for changes and how these impacts on the final product. Communicate ideas in a range of ways including photos, detailed sketches, annotated drawings, mock ups, 3D models. Draw plans which can be read/followed

								by someone else
Making	**Tools, materials and components.** Explore and experiment using simple tools and techniques. Explore and experiment selecting resources and adapting as they go. Explore and experiment constructing with a purpose in mind using a variety of materials.	**Tools, materials and components.** Explore and experiment using simple tools and techniques. Explore and experiment selecting resources and adapting as they go. Explore and experiment constructing with a purpose in mind using a variety of materials.	**Tools** Know how to select from and use a range of tools and equipment to perform a practical task with guidance. [for example, cutting, shaping, joining, and finishing]. **Materials and components** Know how to select from and use a range of materials and components, including construction materials and textiles with guidance. **Health and Safety** Know and follow simple procedures for	**Tools** Know how to select from and use a range of tools and equipment to perform a practical task [for example, cutting, shaping, joining, and finishing]. **Materials and components** Know how to select from and use a range of materials and components, including construction materials and textiles, according to their characteristics. **Health and Safety** Know and follow	**Tools** Know which tools and equipment are suitable for the task and use with increasing accuracy. Use CAM where appropriate with support. **Materials and components** Know that all components have a function. Know how to explain their choice of materials and components according to functional properties and aesthetic qualities. **Health and Safety** Know and follow	**Tools** Know which tools and equipment are suitable for the task and explain why they have been chosen. **Materials and components** Know that all components have a function and explain what each component does when selecting. **Health and Safety** Know and follow procedures for safety and hygiene.	**Tools** Know which tools and equipment are suitable for the task and understand the importance of accurate use. **Materials and components** Explain their choice of materials and components according to functional properties and aesthetic qualities. **Health and Safety** Explain how tools should be used with an understanding of health and safety. Know and explain hygiene procedures.	**Tools** Know the assets and benefits of equipment, explaining why a specific tool has been used. Use CAD/CAM where appropriate independently. Use tools confidently and justify choices from a selection of a wide range of tools. **Materials and components** Confidently choose from a wide range of materials when planning a project and justify choices based on aesthetics and function.

			safety and hygiene with support.	procedures for safety and hygiene with support.	procedures for safety and hygiene.			**Health and Safety** Explain how a range of tools should be used with an understanding of health and safety. Know and explain hygiene procedures and justify why they are in place.
Evaluating	Reviewing models they have made with different materials and media and discussing how they can improve them.	Reviewing models they have made with different materials and media and discussing how they can improve them.	Know how to evaluate their work against a basic design criteria with support. Know to talk about their ideas.	Know how to **evaluate** their work against their design criteria with support. With some guidance know how to evaluate their products as they are developed, identifying what went well and possible **changes they might make next time.**	Know how to **evaluate** their work against a specific design criteria. Know how to **improve work** through peer evaluation. Know how well products meet user needs and wants. Know whether products can be **recycled or reused.**	Know how to **evaluate** their work and others against a specific design criteria Know how to evaluate finished products against existing, key products and **improve their work.** Know how well products work and achieve their purposes.	Know how to test, **evaluate** their work and others against a specific design criteria and refine their ideas. Know how to evaluate finished products against existing, key products and **improve their work. E**xplain why they have made their choices referring to	Know how to test and **evaluate** work against a specific design criteria and refine ideas, taking into account the intended user or group. Know how to evaluate finished products against existing, key products and **improve their work** justifying what improvements

				Know how to **talk** about their **ideas**.		Know whether products can be **recycled or reused** and the **impact on the environment.**	existing products. Know how **sustainable** the materials in products are and the impact on the environment. Know how much products **cost** to make.	they have made and why. Know how **sustainable** the materials in products are and what other choices of materials could be used instead. Know how much products **cost** to make and be able to suggest cheaper alternatives.
Cooking and Nutrition	Eats a healthy range of foodstuffs and understands need for variety in food. Discussed during snack times. Shows some understanding that good practices with regard to exercise, eating,	Eats a healthy range of foodstuffs and understands need for variety in food. Discussed during snack times. Shows some understanding that good practices with regard to exercise, eating,	<u>Healthy breakfast</u> Know what makes a balanced diet and know the five food groups. Know that all food comes from plants or animals. Know how to prepare food safely and	<u>Healthy sandwich/wrap</u> Know the names of food groups (carbohydrates, protein, dairy, fruits and vegetables, fats, and sugars). Know and identify the	<u>Bread</u> Know that bread is made using flour, yeast, sugar, and water (some breads require oil or don't use yeast). Know that yeast gives the bread air and helps it to rise	<u>Pizzas</u> Know that fruits and vegetables are seasonal and understand how a variety are grown. Know that recipes can be adapted to change the appear-ance, taste, texture and aroma.	<u>Mamma Mia: Developing a healthy meal.</u> Know the proportions of each food group which make up a balanced diet. Know where animals are reared and processed. Know how to weigh out	<u>Foods around the world</u> Know what constitutes healthy eating and a balanced diet. Know that food contains calories. Know that a key ingredient is the most important part of a dish and

	sleeping and hygiene can contribute to good health. Understand that equipment and tools have to be used safely.	sleeping and hygiene can contribute to good health. Understand that equipment and tools have to be used safely.	hygienically without using a heat source Know and identify the names of fruits. Know how to peel and cut fruit.	names of fruits and vegetables. Know that fruits are sweet, and vegetables are savoury. Know how to cut raw fruits and vegetables safely with a knife.	and understand why. Know that there are different types of flour (strong flour, plain flour and self-raising flour) and how it is produced. Know that bread is a carbohydrate. Know the names of different breads (nan bread, loaf, pitta bread, wholemeal bread, flat breads). Know how to weigh out ingredients using a weighing scale.	Know that different foods can compliment each other. Know where to find the nutritional information on packaging and describe the information that should be included on a label. Know how to use oven gloves to remove items from the oven and work safely around an oven. Know how to turn an oven on and off.	ingredients using a weighing scale with increased accuracy. Know which foods can be substituted for others. Know wh	cannot be substituted. Know the proportions of each food group which make up a balanced diet. Know that I can use a nutritional calculator to see how healthy a food op-tion is. Know that I can adapt a recipe to make it healthier by substituting ingredients. Know that cutting vegetables into smaller sizes to allows them to cook quicker. Know how to cook on a stove and adjust the

					Know how to knead bread and proof it. Know how to season and add flavour to breads.			temperature to boiling or simmering.