Progression in Design Technology

Key Knowledge Seams *(These are the themes of knowledge that are returned to each year and build upon what has gone before*	Key Skills *(These are any skills that children will develop – they are what they will do with the knowledge they have gained)*	Foundation		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technical knowledge – Creating increasingly accurate drawings, using measurements when appropriate. Knowing the properties of various materials and the function of a variety of tools, including their safe use. Developing knowledge of the effects of mechanical movement and electricity. **Cooking and nutrition –** the principles of a varied diet, the importance of hygiene routines, knowledge of how foods change when processed.	**Design –** gathering information, making personal preferences, improving original designs, working collaboratively **Make –** Develop hand-eye coordination and special awareness to anticipate results. Select appropriate materials and tools. Work with resilience to develop ideas **Evaluate –** embrace failures as part of the process. Understand which failures are critical to the design. Feed back to others constructively.	**Materials** • Explore textures, feel and look at different materials • *Respond to a range of media and materials, developing an understanding that they manipulate and create effects • Use different materials to express their own idea. **Construction** • Begin to use the language of designing and making, e.g. join, build and shape. • To learn to construct with a purpose in mind. • To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools • Learn how everyday objects work by dismantling things. **Food and nutrition** • To begin to understand some of the tools, techniques and processes involved in **food preparation**. – • Children have basic hygiene awareness.	**Project 1**	**Fabric faces-** working to a design brief, selecting appropriate tools and fastening methods	**Fabric bunting-** working to a design brief, selecting appropriate tools and fastening methods	**Juggling balls –** select appropriate tools and materials to suit functionality.	**Kites –** develop an understanding of more complex structures and the effects of different materials. Learn about technical designs	**Christmas tree decorations (felt stars) –** Experiment and evaluate varied design themes. Incorporate fastening techniques (stitches) into the design.	**Floor robot adventures –** design maps and programme robots to take planned routes.
			Project 2	**Moving pictures –** explore and use sliders, levers and wheels to create movement	**Lunch boxes –** explore and evaluate methods to create stable structures	**Battery operated lights -** Understand and use electrical components in their constructions. Draw circuit diagrams.	**Mechanical posters** Understand and use simple mechanical levers and linkages	**Marble runs –** investigate structures for shape and balance	**Cams –** use appropriate materials and tools to create a frame and moving components
			Project 3	**Seasonal salads –** varied diet, food preparation tools and hygiene, food origins	**Dips and dippers -** varied diet, food preparation tools and hygiene, food origins	**Bread** - varied diet, food preparation tools and hygiene, interactions between ingredients, food origins	**Edible garden -** varied diet, food preparation tools and hygiene, seasonality	**Super seasonal food -** varied diet, food preparation tools and hygiene, seasonality	**Global food -** varied diet, food preparation tools and hygiene, food sources and storage
			Knowledge development	**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** • 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. **Cooking and Nutrition** • use the basic principles of a healthy and varied diet to prepare dishes; • understand where food comes from.		**Design** • use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups; • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately; • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • investigate and analyse a range of existing products; • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work; • understand how key events and individuals in design and technology have helped shape the world. **Technical Knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures; • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]; • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]; • apply their understanding of computing to program, monitor and control their products. **Cooking and Nutrition** • understand and apply the principles of a healthy and varied diet; • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques; • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.		