Calcot Schools Design and Technology Overview

	Autumn Term	Spring Term	Summer Term
EYFS	During the Early Years Foundation Stage (both FS1 and FS2) the children will begin developing early design and technology skills. Whilst many will be learned as part of Expressive Arts and Design, many will also be as part of communication and language, physical development and mathematics. The children will be encouraged to access learning in both indoor and outdoor learning environments. They will be provided with the opportunity and resources to: 1) build with a purpose-Use construction to create something with a purpose. 2) work together to solve problems and find solutions 3) discuss ideas with others and develop their language for communication and thinking. 4) share, turn take and collaborate 5) talk about what they have made, explain their choices and say what they like about their work and that of others. 5) Make birthday cards, puppets, models, signs 6) measure, count and develop an awareness of size and space. 7) use technology and devices which support designing/making e.g. camera, photocopier 8) use a range of tools and equipment to develop control, cutting, joining and folding. 8) develop gross motor control through den building, creating obstacle courses 9) expressing and representing ideas		
Year 1	**Structures-Free Standing** To identify free standing structures in the world and recognise similarities and differences in them. Learn different assembly techniques for strength and stability. To make and evaluate a structure against a simple design brief.	**Mechanisms-Levers and Sliders** To identify sliders and levers in the world and identify them as mechanisms for movement. To demonstrate their use, design, make and evaluate a product that incorporates the mechanism.	**Food/Cookery** To name and sort fruit and vegetables. To understand where fruit and vegetables come from and that food comes from plants and animals. Begin to learn how food comes from a source to our plate. Identify fruits and vegetables as a food group that provides us with important vitamins and minerals for health. Learn basic food preparation skills including cleaning/washing before eating,peeling, chopping and preparing skills.
Year 2	**Mechanisms-Wheels and axles** To understand that wheels and axles are a mechanism that provides movement building upon their knowledge of levers/sliders. Understand the difference between Investigate and explore different axles and their benefits and limitations. Design and make a product with wheels/axels. Evaluate the strengths and weaknesses of their mechanism within their product.	**Food/Cookery** Understand that food has to be reared(comes from elsewhere) grown or caught and further develop their understanding of how their food comes from a source to our plate. Begin to explore the food groups and learn the need for a healthy, balanced diet, Start to identify how the food groups meet our needs e.g. carbohydrates=energy. Explore the eat well plate and how the different parts of a meal fit into the section of the plate. Learn how to prepare food by grating, slicing, chopping and cutting.	**Textiles-Joining techniques and templates** To identify different ways textiles are used. To identify and demonstrate different ways fasteners work when incorporated in textiles. Develop technical vocabulary including prototype and template. Design and create a simple product relating closely to a given brief. Evaluate against the brief stating what was good and what could be improved.
Year 3	**Structures- Shell structures-CAD** To identify shell structures. To explain what a shell structure is and how these can be reinforced and strengthened.Explore (using CAD) the different ways nets can be assembled. Design a net using CAD and assemble it. Explore the benefits of CAD in relation to hand drawn NETS. Evaluate the strength and stability of their product	**Textiles-2D shape to 3D project** To understand how a 3D product is created from a 2-D template. Learn and explore different stitch techniques to identify their benefits and purposes. To explore different fabric types. Learn different applique techniques and incorporate these into a product. Design and make a template that will create a 3D product. Learn that aesthetics is important within a product specification. Use testing within the evaluation process.	**Food/Cookery** Begin to learn which food is grown (tomatoes, wheat, potatoes), reared (pigs, chicken, cattle) and caught (fish) in the UK, Europe and Wider World.Learn that different parts of the plant can be eaten-root/,tuber, stem, fruit, flower. Begin to understand how food is imported and exported and the benefits and limitations of this. Develop food preparation, safety and hygiene skills including hair tied up, earring aprions, washing hands, food preparation, use of different chopping boards.

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Year 4	**Electrical Systems-Simple circuits and switches** (including programming and control) To explain how an electrical system works and how it provides power to make the components work.Create handmade switches and explain how and why they work. Create a product prototype that includes an electrical circuit to provide power. Design a product inline with the brief. Create product specifications. To evaluate the effectiveness of the product by referring to the specification.	**Mechanical Systems Levers and linkages** Further develop the understanding of mechanisms but in engineering terms as well as product design. Explain how a lever works and creates movement and how the direction can be changed. Create levers and linkages that move in different ways and explore their uses in the real world. Carry out research to determine products currently on the market and customer needs. Design a product which follows the brief but also takes into account the research they undertake. To evaluate the effectiveness of the product by referring to the specification.	**Food/Cookery** Further develop understanding of food grown in the UK and Europe. Identify foods grown in the UK and why these may thrive in our climate. Prepare hygienically savoury food. Carry out safe and hygiene food preparation and begin to understand what could happen that food poisoning can occur if not followed. Exploring different breads and the skills needed for making these including-kneading, baking, the use of yeast for rising.
Year 5	**Structures-Frame structures** To identify frame structures in the world and explain why they are used. Learn techniques for providing greater stability and structure including triangulation by exploring engineering works e.g. Brunel's bridges. Explain how frame structures are created and what gives them strength. Create frame structures from different materials and test their strength. Design and make a frame structure suitable for the brief and specification given. To carefully measure, cut, saw to ensure the dimensions are correct and use appropriate joining techniques. Evaluate the effectiveness of the product by referring to the specification and including testing and consumer feedback.	**Food/Cookery** Revisit the foods grown in the UK but develop upon this by understanding how food availability is affected by the seasons. Name foods for the different seasons in the UK. Understand how food is processed into ingredients that can be eaten or used in cooking. INvestigate and learn about different processing procedures. Explore how raw foods can be prepared and combined to create processed foods.	**Electrical Systems More complex switches and circuits (including programming, monitoring and control)** To identify how control programs may be used to control electrical systems and explain what the steps to a control program may be. To explore parallel circuits and contrast to those in series. Use ICT to program a set of instructions to control a device and represent this with a flowchart. To design and make a product that includes control technology and produce a programmed sequence of steps. To use appropriate techniques for cutting, securing, joining and finishing. To evaluate the effectiveness of the product by referring to the specification and include consumer feedback in the evaluation.
Year 6	**Textiles combining different fabric shapes (including computer aided design)** To identify different ways fabrics are joined and explain which techniques are decorative and which are functional. Use different stitches, with growing confidence and use different embellishments techniques-eyelet, buttons, toggle, embroidery. Cut and use a template/pattern. To create a product (from a given brief) that combines different fabrics/shapes.Fully evaluate the effectiveness of	**Mechanical Systems Pulleys or gears** To identify pulleys and gears in the world.Explain how gears and pulleys work and demonstrate how they are used.create working pulleys and gears using kits and by making them. Explore the effect of differing gear sizes and ratio. To create a product (from a given brief) that includes working pulleys/gears. To fully evaluate the effectiveness of the product by referring to the specification and stating how to improve them.	**Food/Cookery** Having learned about foods in the UK and developed some basic knowledge of imported/exported foods develop this further by exploring how our diets have changed because food is so readily available. learn about food sustainability.Explore dietary changes in the seasons and the foods imported. Investigate food miles. Begin to learn how foods are preserved when being exported. Further develop cooking skills through peeling, cutting, slicing, kneading, baking,shredding, whisking and mixing.

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