Design and Technology at Great Whelnetham C of E Primary School

Year: Year 4/5 – Cycle 1

Title	Cooking – Savoury pastry slices
Overview	The aim of this unit is to prepare and cook a savoury puff pastry slice. Children will apply their knowledge of having a healthy, varied diet to plan, prepare and cook a healthy lunch option. Children will consider which food types are needed and which ingredients complement each other to create a tasty dish.
Knowledge Acquisition	Pupils will explore a healthy diet and make links between foods and food groups. They will understand that food and drinks contain different nutrients, including sweet and savoury. Pupils will explore what tastes complement each other and plan their own. We will explore different diets and then match ingredients to their needs. Pupils will finish the topic by making their own savoury slice and evaluating their final product.
Key LOs	➢ To know that a healthy balanced diet contains the five food groups and what this provides our bodies ➢ To understand that food and drink contain different substances (nutrients, water, fibre and minerals) needed for health ➢ To know that we have sweet and savoury foods ➢ To plan a savoury pastry slice ➢ To begin to understand that certain foods complement each other ➢ To know that people have different diets (vegetarian, vegan etc.) ➢ To understand the process of making fresh pastry ➢ To make fresh pastry ➢ To prepare the topping of pastry, selecting and using appropriate tools, equipment and techniques safely ➢ To cook the pastry slice ➢ To evaluate the completed dish
Key Vocabulary	puff pastry, sift, chill, round bladed knife, spring back, roll
Key Learning Experiences	➢ Sort ingredients and foods into sweet and savoury ➢ Explore combinations of ingredients and foods to find out which complement and begin to explain why ➢ Complete a vote of design options to find out the preferred topping ➢ Challenge of designing a topping for a vegetarian/vegan/gluten intolerance etc. ➢ Create a cross sectional diagram of the planned pastry slice ➢ Link to Mathematics (measuring ingredients, making pastry to size etc.) ➢ Opportunities to explain their choices of process, tools, materials linking to function and aesthetics ➢ Children will be self-selecting their ingredients, tools and techniques from a wider range using these confidently ➢ Weigh and measure the time, dry ingredients and liquids needed ➢ Prepare the area for cooking hygienically, ensuring hands are washed and all other cleanliness measures are completed ➢ Link to Science – Changes throughout the process ➢ Plan, prepare, cook and taste the completed pastry slice ➢ Taste test, theirs and others pastry slice! ➢ Discussion, reflection and reasoning opportunities throughout the designing, planning, making and evaluation processes

Title	Design make and evaluate – Photo frames
Overview	The aim of this topic is for children to learn about how photo frames are developed and made through a process of research, design, make and evaluate. Pupils will start by investigating a range of photo frames, identifying what makes them successful and completing market research. Moving forward, we will create a design specification that we will use to build our own frames. When building the frames, we will learn to use a range of resources such as; saw, clamp, safety block, hot glue gun etc. and explore different joins. We will look at different ways of adding strength to our free standing frames.
Knowledge Acquisition	Pupils will learn about photo frames and analyse what makes them successful. They will complete the market research and learn about sustainability/impact of using wood in a product. Pupils will move onto designing a product which takes into account the needs of the user – creating a labelled diagram and resource list. Finally, we will move onto the make stage where pupils will select and use a range of tools and equipment, including saw, clamps, glue gun etc to construct a frame. Finally, we will evaluate our frame against some given success criteria.
Key LOs	➢ To understand that photo frames are made out of a variety of materials. ➢ To complete market research (material, colour, size, join etc.) ➢ To learn about the sustainability/recyclability and impact of using wood in a product ➢ To start to understand how much products cost ➢ Design a product which takes into account the needs of the users (market research) ➢ Create own success / design criteria ➢ Make a labelled drawing which shows the key features of a product and different views of the product ➢ Select from and use a range of tools and equipment, including, saw, clamp, glue gun to construct the frame ➢ Experiment with two joining techniques (Mitre and Butt) ➢ To learn how to strengthen and reinforce their free standing frame ➢ Use finishing techniques to improve the appearance of the frame ➢ Evaluate the frame against original design criteria and identify some modifications they have made, including the safety of the product.
Key Vocabulary	material, market research, mitre join, butt join, wood, cut, mark, groove, saw, glue, sandpaper, wood blocks, clamp, hot glue gun, design, design criteria, evaluate
Key Learning Experiences	➢ Investigate a selection of photo frames, consider where and how it was designed and made, analysing their key features and understand their purpose also ➢ Look at a range of existing frames, identify the cost and consider the sustainability and recyclability of the product ➢ Complete Market Research, use the results to inform their design ➢ Look at the sustainability of using wood ➢ Learn about a manufacturing company or design and make frames ➢ Consider the financial costing of making the product also – Can you make the frame within budget? ➢ Children to explore the two joins and explore which method is best ➢ Children to select from and use safely a range of materials and tools to construct their frame according to the functional properties and aesthetic qualities ➢ Measure, mark out, cut and shape the wood to construct the frame ➢ Children will be using tools with confidence ensuring a high quality finish ➢ Opportunities to explain their choices of process, tools, materials linking to function and aesthetics ➢ Evaluate their photo frame and others by considering the design criteria and meeting the user needs ➢ Link to mathematics learning of measuring, angles and costing ➢ Link to Science – materials ➢ Discussion, reflection and reasoning opportunities throughout the designing, planning, making and evaluation processes

Year 4/5 Cycle 2

Title	Mechanics – Gears, pulleys and levers
Overview	The aim of this unit is to understand and use mechanical systems. Children will have the opportunity to observe, explore and investigate existing gears, pulleys, cams, levers and linkages. Children will use their knowledge of how these mechanical systems work to build their own.
Knowledge Acquisition	Pupils will learn about the different mechanical systems including levers, gears and pulleys. We will learn and experiment to understand that systems have an input, process and output. We will construct a range of mechanical systems and evaluate their successfulness. Towards the end of the topic we will construct and explore levers and linkages and constructing cams.
Key LOs	➢ To learn about the different mechanical systems (levers, gears and pulleys) ➢ To understand that mechanical and electrical systems have an input, process and output ➢ To construct and explore levers ➢ To construct and explore gears ➢ To construct and explore pulleys ➢ To learn about the mechanical systems of levers, linkages and cams ➢ To construct and explore levers and linkages ➢ To construct and explore cams
Key Vocabulary	Mechanical systems, levers, gears, pulleys, forces, levers, linkages, cams, (round, snail, eccentric, egg shapes, ellipse, hexagon) cam handle, slider, follower, rotate, movement, linear, follower cam and eccentric cam, touched wheels, direction, belt, speed, input, output,
Key Learning Experiences	➢ Explore a range of existing products that use mechanical systems, disassemble the products to find out how it was made and how it works ➢ Identify the mechanical system used in different products ➢ Identify the pioneers of the mechanical systems and their ground breaking products ➢ To identify the required tools, construction methods and method to assembly ➢ To work in groups to develop and improve mechanical systems ➢ Sketch ideas for creating the mechanical systems ➢ Opportunities to explain their choices of process, tools, materials linking to function and aesthetics ➢ Children will be self-selecting their materials, tools and techniques from a wider range ➢ What would happen if… exploration opportunities ➢ Look at the cartoonist Rube Goldberg's invention ➢ Each lesson provides opportunities for rich discussion, playful exploration, collaboration and evaluations of own and others mechanisms using the success criteria ➢ Links to Mathematics and Science – problem solving & materials ➢ Discussion, reflection and reasoning opportunities throughout the designing, planning, making and evaluation processes

Title	Patchwork Blanket – Applique
Overview	Within this textile unit of work, children will work together to create a class Patchwork blanket. Children will learn the decorative stich of cross stich and learn what applique is and understand the process of creating applique. These skills will then be used to design and create a patch, which will then be assembled to create a class patchwork blanket. There will then be an opportunity to reflect upon and evaluate their work from a given success criteria.
Knowledge Acquisition	Pupils will learn about the different types of stitches and their purpose. We will explore how to decorate a stitch and cross stitch. We will then learn what applique is and watch teacher modelling and videos to see it in action. We will design a patch and patchwork blanket from a given success criterion. After completing our blanket using tools, join and stitch a blanket. Finally, we will evaluate our completed textile project.
Key LOs	➢ To learn about the different types of stitches and their purposes ➢ To learn the decorate stitch of cross stich ➢ To understand what applique is ➢ To design a patch of a patchwork blanket from some given success criteria ➢ To select materials and tools to, join and stitch a decorative patch ➢ To evaluate my completed textile project
Key Vocabulary	Types of stiches – straight, zig, zag, whip/blanket, blind, button hole, overlock, forward and back stich, cross stitch, applique, shapes and patterns
Key Learning Experiences	➢ Look at the different types of stiches and discuss the purposes of these, identify these stitches on objects ➢ To look at examples of cross stitching ➢ Learn and practice cross stich ¬ To look at examples of applique ➢ Look at existing patch work blankets and understand the process of how they are constructed ➢ Design brief could link to a chosen audience or celebrate a special event/anniversary/topic ➢ Together create a design / success criteria ➢ Measure, cut and join their materials ➢ Select suitable stiches when hand stitching their patch ➢ Links to Mathematics and Science – Measuring & Materials ➢ Discussion, reflection and reasoning opportunities throughout the designing, planning, making and evaluation processes ➢ Evaluate own and others patches, looking closely at the quality of the design, manufacture and fitness for purpose