

Design and Technology

Progression Map

Kirkby C of E Primary School

Building on a tradition of achievement and values in a caring environment

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| Skills and Knowledge | EYFS | KS1 | LKS2 | UKS2 |
| Generic | Technology To recognise a range of technology is used in places such as homes and schools. Select and use technology for a particular purpose  Expressive arts and Design Exploring and using media and materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function  Being imaginative Use what they have learnt about media and materials in original ways, thinking about uses and purposes. Represent their own ideas, thoughts and feelings through design and technology.  Physical Development Health and self-care Understand the importance of a healthy diet Talk about ways to keep healthy and safe | DesignDesign 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. | 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. |
| DesignDeveloping, planning and communicating ideas.http://t0.gstatic.com/images?q=tbn:ANd9GcSV9Jfan61Lef77y7AfuL2W8PTqeXzvt-lJhf78E8IKgK0yjG4_2-ib9yk:www.cevector.com/wp-content/uploads/2013/09/pencil-clipart2.png | Explain what they are making and which materials they are using. Select materials from a limited range that will meet a simple design criteria e.g. shiny. Select and name the tools needed to work the materials e.g. scissors for paper. Explore ideas by rearranging materials. Describe simple models or drawings of ideas and intentions. Discuss their work as it progresses | Begin to draw on their own and other people’s experience to help generate ideas and research conducted on criteria. Begin to understand the development of existing products: Explain what they are for, how they work, what materials have been used. Develop their ideas through discussion, observation, drawing and modelling. Start to suggest ideas and explain what they are going to do, identifying a purpose for what they intend to design and make. Understand how to identify a target group for what they intend to design and make based on a design criteria. Begin to develop their ideas through talk and simple drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT (if relevant) Communicate with others about how they want to construct their product. Explain how they intend to fix simple materials and explain why they chose a certain material.Develop their own ideas from given starting points | Start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science.Confidently make labelled drawings from different views showing specific features.Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail.Identify the strengths and areas for development in their ideas and products.When planning, consider the views of others (including intended users) to improve their work.Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.When planning explain their choice of materials and components according to function and aesthetic.Take account of the ideas of others when designing.Produce a plan and explain it to others.Consider how to present their product in an interesting way. | Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and CAD. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. With growing confidence and accuracy apply a range of finishing techniques, including those from art and design.Draw up a specification for their design- link with Mathematics and Science. Plan the order of their work, choosing appropriate materials, tools and techniques. Suggest alternative methods of making if the first attempts fail. Identify the strengths and areas for development in their ideas and products.Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose. Use market research to inform plans.Follow and refine their initial plan if necessary and convincingly justify their plan to someone else Show consideration to culture and society in a design.Explain how their product should be stored justifying with reasons Suggest ideas about how their product could be sold. Work within a given budget. |
| MakeWorking with tools, equipment, materials, and components to make quality products.http://t1.gstatic.com/images?q=tbn:ANd9GcQTbL-jNLRWm5rx13K4SZsWO9N9GNzurPxlThlwpfWkyM1AGLEbuzdcOJw:bestclipartblog.com/clipart-pics/-crafts-clipart-1.jpg | Begin to create their design using basic techniques. Start to build structures, joining components together. Look at simple hinges, wheels and axles. Use technical vocabulary when appropriate. Begin to use scissors to cut straight and curved edges and hole pinches to punch holes. Explore using/ holding basic tools such as a saw or hammer. Use adhesives to join material | Begin to select tools and materials; use correct vocabulary to name and describe them. Learn to use hand tools safely and appropriately. Build structures, exploring how they can be made stronger, stiffer and more stable. With help measure, cut and score with some accuracy. Measure materials to use in a model or structure Start to assemble, join and combine materials in order to make a product – e.g. a pop up card. Be able to join things (materials/ components) together in different ways.Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques. Join fabric using a running stitch, glue and tapeStart to choose and use appropriate finishing techniques based on own ideas. Create working circuits to light a bulb or work a buzzer.Attach features to a vehicle (e.g. an axel and wheels). | Select a wider range of tools and techniques for making their product safely.Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. Measure carefully and show initiative to check so as not to make mistakes.Start to join and combine materials and components accurately in temporary and permanent ways.Know how mechanical systems such as cams or pulleys or gears create movement. Use pulleys, levers and linkages in their product.Understand how more complex electrical circuits and components can be used to create functional products.Continue to learn how to program a computer to monitor changes in the environment and control their products.Understand how to reinforce and strengthen a 3D framework.Now sew using a range of different stitches, to weave and knit. Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy. Use a simple pattern to create a life-sized item of clothing.Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.Persevere with their product even though their original idea might not have worked.Build a model which incorporates a motor.Use a glue gun with close supervision (one to one).Create a more complex pop up (e.g. card). | Confidently select appropriate tools, materials, components and techniques and use them. Use tools safely and accurately. Assemble components to make working models. Aim to make and to achieve a quality product. With confidence pin, sew and stitch materials together to create a product. Demonstrate when make modifications as they go along. Construct products using permanent joining techniques. Understand how mechanical systems such as cams or pulleys or gears create movement. Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products. Know how to reinforce and strengthen a 3D framework. Understand that mechanical and electrical systems have an input, process and output. Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT. Combine fabric to make a high quality product for a purpose Use a craft knife, cutting mat and safety ruler with close supervision (one to one). |
| EvaluateEvaluating processes and product. | Say what they like and do not like about items they have made and attempt to say why. Begin to talk about their designs as they develop and identify good and bad points. Start to talk about changes made during the making process. Discuss how closely their finished products meet their design criteria. | Evaluate their work against their design criteria. Look at a range of existing products explain what they like and dislike about Products and why. Start to evaluate their products as they are developed, identifying what went well and possible changes they might make next time. With confidence talk about their ideas  | Evaluate their work both during and at the end of the assignmentEvaluate their products carrying out appropriate testsBe able to disassemble and evaluate familiar products and consider the views of others to improve themEvaluate how the key designs of individuals in design and technology have helped shape the worldSuggest some improvements and say what was good and not so good about their original designBegin to explain how they can improve their original designsEvaluate their product thinking of both appearance and the way it works

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 | Evaluate their products, identifying strengths and areas for development.Evaluate their work both during and at the end of the assignment. Record their evaluations using labelled drawings.Evaluate against their original criteria and suggest ways that their product could be improved. Evaluate how the key designs of individuals in design and technology have helped shape the world. Test and evaluate their final product.Evaluate if their product meets all design criteria Justify why they selected specific material. |
| 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. | Build structures, exploring how they can be made stronger, stiffer and more stable.Explore and use mechanisms [e.g. wheels and axles], in their products.Understand about the simple working characteristics of materials and components. Understand about the movement of simple mechanisms including wheels and axles. Understand that food ingredients should be combined according to their sensory characteristics. | 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].Apply their understanding of computing to program, monitor and control their products.Understand how levers and linkages or pneumatic systems create movement.Know how to make strong, stiff shell structures. Know that food ingredients can be fresh, pre-cooked and processed. | 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 [e.g. series circuits incorporating switches, bulbs, buzzers and motors].Apply their understanding of computing to program, monitor and control their products Understand how more complex electrical circuits and components can be used to create functional products.Understand how to program a computer to monitor changes in the environment / control their products.Know how to reinforce/strengthen a 3D framework.Know that a recipe can be adapted a by adding or substituting one or more ingredients. |
| Cooking and Nutrition | Begin to develop a food vocabulary using taste, smell, texture and feel. Explore familiar food products e.g. fruit and vegetables. Stir, spread, knead and shape a range of food and ingredients. Begin to work safely and hygienically. Start to think about the need for a variety of foods in a diet. Measure and weigh food items, non-statutory measures e.g. spoons, cups | Understand that all food comes from plants or animals. Develop understanding of where different foods come from (e.g. foods which are farmed, grown elsewhere (e.g. home) or caught) and also food native to different countries. Understand how to name and sort foods into the five groups in (e.g. could use the ‘The Eat well plate’).Know that everyone should eat at least five portions of fruit and vegetables every day.Recognise the need for a variety of food in a diet.Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source. Demonstrate how to use techniques such as cutting, peeling and grating.Make dishes from other countries. | Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.Understand how to prepare and cook a variety of predominantly savoury dishes including experience of using a heat source.Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.Measure and weigh ingredients appropriatelyExplain why a healthy diet is importantKnow that to be active and healthy, food and drink are needed to provide energy for the body and identify healthy high energy foods.Understand what to do to be hygienic and safeBecome familiar with some of the processes that foods go through to preserve them/make them more appealing. | Explain how ingredients were grown, reared and caught. Understand that seasons may affect the food available. Explain how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including the use of a heat source. Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know different food and drink contain different substances (nutrients, water and fibre) that are needed for health. Use appropriate tools and equipment, weighing and measuring with scales. Plan a healthy and affordable diet. |