Design & Technology Progression of Skills

Design & Technology

Skills progression

Early Years	KS1	LKS2	UKS2
Designing: Generating, developing, modelling and communicating ideas			
By: ▪ Can explain what they want to make ▪ Can explain what tools and resources they need ▪ Having own ideas of what they want to make ▪ Can explain to others what they need (tools and resources) ▪ Make a representation on paper to show their ideas	By: ▪ explaining what I want to do and describing how I may do it ▪ explaining purpose of product, how it will work and how it will be suitable for the user ▪ describing design using pictures, words, models, diagrams, beginning to use ICT ▪ designing products following design criteria ▪ choosing best tools and materials, and explaining choices ▪ using knowledge of existing products to produce ideas	By: ▪ using research for design ideas showing design meets a range of requirements and is fit for purpose ▪ beginning to create own design criteria ▪ suggesting improvements for design ▪ producing a plan and explaining it to others, include an annotated sketch ▪ making and explaining design decisions ▪ explaining how a product will work ▪ Beginning to use computers to show design.	By: ▪ drawing on market research to inform design ▪ using research of user's individual needs, wants, requirements for design ▪ identifying features of design that will appeal to the intended user ▪ creating own design criteria and specification ▪ coming up with innovative design ideas ▪ following and refining a logical plan ▪ using annotated sketches, cross-sectional planning and exploded diagrams ▪ making design decisions, considering, resources and cost ▪ clearly explaining how parts of design will work, and how they are fit for purpose ▪ independently modelling and refining design ideas by making prototypes and using pattern pieces ▪ using computer-aided designs
Making:			
By: ▪ Selecting tools & techniques to shape, assemble and join ▪ Replicating structures with materials / components ▪ Discussing how to make an activity safe and hygienic ▪ Understanding different media can be combined for a purpose	By: ▪ explaining what I am making and why it fits the purpose ▪ making suggestions as to what I need to do next ▪ joining materials/ components together in different ways ▪ measuring, marking out, cutting and shaping materials and components, with greater independence ▪ describing which tools I am using and why ▪ choosing suitable materials and explaining choices depending on characteristics ▪ Developing use of finishing techniques to make product look good ▪ working safely and hygienically	By: ▪ selecting suitable tools and equipment, explaining choices in relation to required techniques and use accurately ▪ selecting appropriate materials, fit for purpose; explaining choices ▪ realising if a product needs refining ▪ measuring, marking out, cutting and shaping materials/components with increasing accuracy ▪ assembling, joining and combining materials and components with some accuracy ▪ applying a range of finishing techniques with increasing accuracy	By: ▪ using selected tools and equipment precisely ▪ producing suitable lists of tools, equipment, materials needed, considering constraints ▪ selecting appropriate materials, fit for purpose; explaining choices, considering functionality and aesthetics ▪ creating, following, and adapting detailed step-by-step plans ▪ making changes to improve quality ▪ accurately measuring, marking out, cutting and shaping materials/ components ▪ accurately assembling, joining and combining materials/components ▪ accurately applying a range of finishing techniques ▪ using techniques that involve a number of steps ▪ being resourceful with practical problems
Evaluating:			
By: ▪ Looking at similarities and differences between existing objects / materials / tools ▪ Showing an interest in technological toys ▪ Describing textures ▪ Considering and managing some risks ▪ Talking about how things work ▪ Adapting work if necessary	By: ▪ describing what went well, thinking about design criteria ▪ talking about existing products considering: use, materials, how they work, audience, where they might be used; expressing personal opinion ▪ talking about what I would do differently if I were to do it again and why	By: ▪ Referring to design criteria while designing and making, use criteria to evaluate product ▪ Explaining how I could improve original design ▪ evaluating existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose ▪ researching whether products can be recycled or reused ▪ knowing about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products ▪ Considering evaluation from peers	By: ▪ Evaluating quality of design while designing and making; is it fit for purpose? ▪ Checking my design is the best it can be ▪ evaluating ideas and finished product against specification, stating if it is fit for purpose ▪ testing and evaluating final product; explain what would improve it and the effect different resources may have had ▪ carrying out thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose ▪ evaluating how much products cost to make and how innovative they are ▪ researching and discussing how sustainable materials are ▪ considering the impact of products beyond their intended purpose ▪ discussing some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products

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Skills Progression-Technical Knowledge

1) Structures			
By: ▪ Building simple towers and construction with a variation of construction toys (blocks, train tracks, Duplo etc) ▪ Exploring and selecting materials based on function or characteristic ▪ Adapting constructions to make it stronger/taller/fit better	By: ▪ suggesting ways to make material/product stronger ▪ measure materials ▪ describing some different characteristics of materials ▪ joining materials in different ways ▪ use joining, rolling or folding to make it stronger ▪ using own ideas to try to make product stronger	By: ▪ using appropriate materials ▪ working accurately to make cuts and holes ▪ joining materials ▪ measuring carefully to avoid mistakes ▪ attempting to make a product strong ▪ making a strong, stiff, stable structure	By: ▪ measuring accurately enough to ensure precision ▪ ensuring product is strong and fit for purpose ▪ selecting materials carefully, considering intended use of the product, the aesthetics and functionality ▪ reinforcing and strengthening a 3D frame
2) Mechanical Product			
By: ▪ Experimenting with glue and fasting methods (tape, split pins, treasure tag etc) ▪ Selecting the right glue and fasting methods (tape, split pins, treasure tag etc) ▪ Starting to understand that some things require electricity to work (batteries, plugged in mains). ▪ that adults touch plugs -not children- because of the danger electricity can bring	By: ▪ Creating a vehicle with wheels/axles/chassis	By: ▪ Using pneumatic systems to create movement	By: ▪ Using sustainable energy to control a mechanism ▪ Using cams to create movement
3) Textiles			
▪ By: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; ▪ Share their creations, explaining the process they have used; ▪ Make use of props and materials when role playing characters in narratives and stories.	By: ▪ measuring, cutting and joining textiles to make a product with some support ▪ Weaving fabrics ▪ Fastening on and off correctly ▪ Creating a simple running stitch ▪ Sewing a button on ▪ Understanding that a 3D textile structure can be made from two identical fabric shapes.	By: ▪ Dyeing fabric ▪ Joining different textiles in different ways ▪ Using a range of stitches e.g. running stitch, back stitch, blanket stitch ▪ Beginning to attach beads/sequins securely using appropriate techniques ▪ beginning to devise a template ▪ understanding that a simple fabric shape can be used to make a 3D textiles project ▪ creating applique with textiles	By: ▪ using own template ▪ Attaching beads/sequins securely using appropriate techniques ▪ Understanding that a single 3D textiles project can be made from a combination of fabric shapes. ▪ Creating products with textiles by recycling/repairing ▪ making product attractive and strong
4) Cooking			
By: ▪ practising stirring, mixing, pouring ▪ discussing how to make an activity safe and hygienic ▪ knowing that some food is healthy and we should eat it often, other food is unhealthy and this is eaten as a treat. ▪ beginning to understand some food preparation tools, techniques and processes ▪ Discussing use of senses ▪ Use a range of small tools, including scissors, paint brushes and cutlery.	By: ▪ working safely & hygienically ▪ saying where some foods come from, (i.e. plant or animal) ▪ Describing differences between some food groups (i.e. sweet/sour.) ▪ drawing eat well plate; explaining there are groups of food, describe "five a day" ▪ describing importance of varied diet ▪ saying where food comes from and is grown- beginning to understand food comes from UK and wider world ▪ describing how food is farmed, home-grown, caught ▪ cutting, peeling and grating with increasing confidence to produce a savoury multicultural dish	By: ▪ describing how healthy diet= variety/balance of food/drinks ▪ comparing diets now to the past (For instance to the Stone Age) ▪ preparing and cooking dishes safely and hygienically ▪ growing in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking ▪ making product look appealing ▪ beginning to select own ingredients for hot and cold dish ▪ understanding ingredients can be fresh, pre-cooked or processed.	By: ▪ presenting product well - interesting, attractive, fit for purpose ▪ understanding seasonality of foods and prepare food with this in mind ▪ preparing and cooking dishes safely and hygienically including, where appropriate, use of heat source ▪ demonstrating skill with a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. ▪ understanding a recipe can be adapted by adding/ substituting ingredients ▪ adapting recipes to change appearance, taste, texture or aroma ▪ describing some of the different substances in food and drink, and how they can affect health ▪ devising own menu/recipe

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5) Design and programming			
▪ Learning how to program and control Beebot.	By: • writing and following step-by-step instructions; • direct a Bee-Bot to fulfil a design brief • programming a Bee-Bot one instruction at a time, using the arrow buttons. • saying what an algorithm is; • saying why it is important to be precise when writing an algorithm; • checking their work for mistakes (debug) Y1 • starting their programming sequence again if needed. • Seeing how a product changes when they change the instructions; • evaluating and improving their sequence (debug) Y2	By: ▪ using computer-aided design to develop and communicate their ideas ▪ using a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components; ▪ Applying their understanding of computing to program, monitor and control their products. (Crumble)	By: ▪ using computer-aided design to develop and communicate their ideas ▪ programming a computer to monitor changes in environment and control product ▪ applying their understanding of computing to program, monitor and control their products (Crumble)