Progression of DT Skills

Design technology skills

Key Stage	EYFS		KS1		LKS2		UKS2	
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	*Select appropriate resources *Use gestures, talking and arrangements of materials and components to show design * Use contexts set by the teacher *Use language of designing and making (join, build, shape, longer, shorter, heavier etc.)	*Select appropriate resources *Use gestures, talking and arrangements of materials and components to show design * Use contexts set by the teacher *Use language of designing and making (join, build, shape, longer, shorter, heavier etc.)	*have own ideas * explain what I want to do * explain what my product is for, and how it will work *Use pictures and words to plan, begin to use models * design a product for myself following design criteria *research similar existing products * Link products to the real world.	* have own ideas and plan what to do next * explain what I want to do and describe how I may do it * explain the purpose of my product, how it will work and how it will be suitable for the user * describe design using pictures, words, models, diagrams, begin to use ICT * design products for myself and others following design criteria * choose best tools and materials, and explain choices * use knowledge of exisiting products to produce ideas.	*begin to research others' needs * show design meets a range of requirements * describe purpose of product * follow a given design criteria * have at least one idea about how to create product * create a plan which shows order, equipment and tools *describe design using an accurately labelled sketch and words * make design decisions *explain how product will work * make a prototype * begin to use computers to show design	* use research for design ideas * show design meets a range of requirements and is fit for purpose *begin to create own design criteria *have at least one idea about how to create a product and suggest improvements for design. * produce a plan and explain it to others *say how realistic a plan is. *include an annotated sketch *make and explain design decisions considering availability of resources *explain how product will work * make a prototype *begin to use computers to show design.	*use internet and questionnaires for research and design ideas *take a user's view into account when designing * begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose *create own design criteria * have a range of ideas *produce a logical, realistic plan and explain it to others. *use cross-sectional planning and annotated sketches * make design decisions considering time and resources. *clearly explain how parts of a product will work. *model and refine design ideas by making prototypes and using pattern pieces. *use computer-aided designs	* draw on market research to inform design * use research of user's individual needs, wants, requirements for design * identify features of design that will appeal to the intended user * create own design criteria and specification * come up with innovative design ideas *follow and refine a logical plan. *use annotated sketches, cross-sectional planning and exploded diagrams * make design decisions, considering, resources and cost * clearly explain how parts of design will work, and how they are fit for purpose * independently model and refine design ideas by making prototypes and using pattern pieces * use computer -aided designs

Progression of DT Skills

Make	*construct with a purpose, using a variety of resources *use simple tools and techniques *build / construct with a wide range of objects *select tools & techniques to shape, assemble and join *replicate structures with materials / components *record experiences by drawing, writing, voice recording	*construct with a purpose, using a variety of resources *use simple tools and techniques *build / construct with a wide range of objects *select tools & techniques to shape, assemble and join *replicate structures with materials / components *record experiences by drawing, writing, voice recording *understand different media can be combined for a purpose	*explain what I'm making and why *consider what I need to do next *select tools/equipment to cut, shape, join, finish and explain choices *measure, mark out, cut and shape, with support *choose suitable materials and explain choices *try to use finishing techniques to make product look good *work in a safe and hygienic manner	*explain what I am making and why it fits the purpose *make suggestions as to what I need to do next. *join materials/components together in different ways *measure, mark out, cut and shape materials and components, with support. *describe which tools I'm using and why *choose suitable materials and explain choices depending on characteristics. *use finishing techniques to make product look good *work safely and hygienically	*select suitable tools/equipment, explain choices; begin to use them accurately * select appropriate materials, fit for purpose. * work through plan in order *consider how good product will be * begin to measure, mark out, cut and shape materials/components with some accuracy * begin to assemble, join and combine materials and components with some accuracy * begin to apply a range of finishing techniques with some accuracy	* select suitable tools and equipment, explain choices in relation to required techniques and use accurately *select appropriate materials, fit for purpose; explain choices * work through a plan in order. * realise if product is going to be good quality * measure, mark out, cut and shape materials/components with some accuracy *assemble, join and combine materials and components with some accuracy *apply a range of finishing techniques with some accuracy	* use selected tools/equipment with good level of precision * produce suitable lists of tools, equipment/materials needed *select appropriate materials, fit for purpose; explain choices, considering functionality * create and follow detailed step-by-step plan * explain how product will appeal to an audience * mainly accurately measure, mark out, cut and shape materials/components *mainly accurately assemble, join and combine materials/components * mainly accurately apply a range of finishing techniques * use techniques that involve a small number of steps * begin to be resourceful with practical problems	* use selected tools and equipment precisely *produce suitable lists of tools, equipment, materials needed, considering constraints * select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics * create, follow, and adapt detailed step-by-step plans *explain how product will appeal to audience; make changes to improve quality * accurately measure, mark out, cut and shape materials/components * accurately assemble, join and combine materials/components * accurately apply a range of finishing techniques * use techniques that involve a number of steps * be resourceful with practical problems
Evaluate	*dismantle, examine, talk about existing objects/structures *consider and manage some risks *practise some appropriate safety measures independently *talk about how things work *look at similarities and differences between existing objects / materials / tools *show an interest in technological toys *describe textures	*adapt work if necessary *dismantle, examine, talk about existing objects/structures *consider and manage some risks *practise some appropriate safety measures independently *talk about how things work *look at similarities and differences between existing objects / materials / tools *show an interest in technological toys *describe textures	*talk about my work, linking it to what I was asked to do * talk about existing products considering: use, materials, how they work, audience, where they might be used *talk about existing products, and say what is and isn't good * talk about things that other people have made *begin to talk about what could make product better	* describe what went well, thinking about design criteria * talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion *evaluate how good existing products are *talk about what I would do differently if I were to do it again and why	* look at design criteria while designing and making *use design criteria to evaluate finished product * say what I would change to make design better *begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose * begin to understand by whom, when and where products were designed * learn about some inventors/designers/ engineers/chefs/ manufacturers of ground-breaking products	*refer to design criteria while designing and making *use criteria to evaluate product * begin to explain how I could improve original design *evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * discuss by whom, when and where products were designed * research whether products can be recycled or reused * know about some inventors/designers/	*evaluate quality of design while designing and making *evaluate ideas and finished product against specification, considering purpose and appearance. *test and evaluate final product * evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * begin to evaluate how much products cost to make and how innovative they are *research how sustainable materials are *talk about some key	*evaluate quality of design while designing and making; is it fit for purpose? * keep checking design is best it can be. *evaluate ideas and finished product against specification, stating if it's fit for purpose *test and evaluate final product; explain what would improve it and the effect different resources may have had *do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose

Progression of DT Skills

						engineers/chefs/manufacturers of ground-breaking products	inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products	*evaluate how much products cost to make and how innovative they are *research and discuss how sustainable materials are *consider the impact of products beyond their intended purpose *discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products
Technical knowledge- materials and structures			*begin to measure and join materials, with some support *describe differences in materials *suggest ways to make material/product stronger	*measure materials *describe some different characteristics of materials *join materials in different ways *use joining, rolling or folding to make it stronger *use own ideas to try to make product stronger	*use appropriate materials *work accurately to make cuts and holes * join materials *begin to make strong structures	*measure carefully to avoid mistakes *attempt to make product strong *continue working on product even if original didn't work *make a strong, stiff structure	*select materials carefully, considering intended use of product and appearance *explain how product meets design criteria *measure accurately enough to ensure precision *ensure product is strong and fit for purpose *begin to reinforce and strengthen a 3D frame	*select materials carefully, considering intended use of the product, the aesthetics and functionality. *explain how product meets design criteria * reinforce and strengthen a 3D frame
Technical knowledge- mechanisms			*begin to use levers or slides	*use levers or slides *begin to understand how to use wheels and axles	*select appropriate tools / techniques *alter product after checking, to make it better *begin to try new/different ideas *use simple lever and linkages to create movement	*select most appropriate tools / techniques *explain alterations to product after checking it *grow in confidence about trying new / different ideas. *use levers and linkages to create movement *use pneumatics to create movement	*refine product after testing *grow in confidence about trying new / different ideas *begin to use cams, pulleys or gears to create movement	*refine product after testing, considering aesthetics, functionality and purpose *incorporate hydraulics and pneumatics *be confident to try new / different ideas *use cams, pulleys and gears to create movement
Technical knowledge- textiles			*measure, cut and join textiles to make a product, with some support *choose suitable textiles	*measure textiles *join textiles together to make a product, and explain how I did it *carefully cut textiles to produce accurate pieces *explain choices of textile *understand that a 3D textile structure can be made from two identical fabric shapes.	*join different textiles in different ways *choose textiles considering appearance and functionality *begin to understand that a simple fabric shape can be used to make a 3D textiles project	*think about user when choosing textiles *think about how to make product strong * begin to devise a template *explain how to join things in a different way *understand that a simple fabric shape can be used to make a 3D textiles project	*think about user and aesthetics when choosing textiles *use own template * think about how to make product strong and look better *think of a range of ways to join things *begin to understand that a single 3D textiles project can be made from a combination	*think about user's wants/needs and aesthetics when choosing textiles *make product attractive and strong *make a prototype *use a range of joining techniques *think about how product might be sold

Progression of DT Skills

							of fabric shapes.	*think carefully about what would improve product *understand that a single 3D textiles project can be made from a combination of fabric shapes.
Technical knowledge- Food and nutrition	*begin to understand some food preparation tools, techniques and processes *practise stirring, mixing, pouring, blending *discuss how to make an activity safe and hygienic *discuss use of senses *begin to understand that eating well contributes to good health	*begin to understand some food preparation tools, techniques and processes *practise stirring, mixing, pouring, blending *discuss how to make an activity safe and hygienic *discuss use of senses *understand need for variety in food *begin to understand that eating well contributes to good health	*describe textures *wash hands & clean surfaces *think of interesting ways to decorate food *say where some foods come from, (i.e. plant or animal) *describe differences between some food groups (i.e. sweet, vegetable etc.) *discuss how fruit and vegetables are healthy *cut, peel and grate safely, with support	*explain hygiene and keep a hygienic kitchen *describe properties of ingredients and importance of varied diet *say where food comes from (animal, underground etc.) *describe how food is farmed, home-grown, caught *draw eat well plate; explain there are groups of food *describe “five a day” *cut, peel and grate with increasing confidence	*carefully select ingredients *use equipment safely *make product look attractive *think about how to grow plants to use in cooking *begin to understand food comes from UK and wider world *describe how healthy diet= variety/balance of food/drinks *explain how food and drink are needed for active/healthy bodies. *prepare and cook some dishes safely and hygienically *grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	*explain how to be safe/hygienic *think about presenting product in interesting/ attractive ways *understand ingredients can be fresh, pre-cooked or processed *begin to understand about food being grown, reared or caught in the UK or wider world *describe eat well plate and how a healthy diet=variety / balance of food and drinks *explain importance of food and drink for active, healthy bodies *prepare and cook some dishes safely and hygienically *use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	*explain how to be safe / hygienic and follow own guidelines *present product well - interesting, attractive, fit for purpose *begin to understand seasonality of foods *understand food can be grown, reared or caught in the UK and the wider world *describe how recipes can be adapted to change appearance, taste, texture, aroma *explain how there are different substances in food / drink needed for health *prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source * usea range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	*understand a recipe can be adapted by adding / substituting ingredients *explain seasonality of foods *learn about food processing methods *name some types of food that are grown, reared or caught in the UK or wider world *adapt recipes to change appearance, taste, texture or aroma. *describe some of the different substances in food and drink, and how they can affect health *prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source. *use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. *begin to discuss marketing strategies
Technical knowledge- Electrical systems					*use simple circuit in product *learn about how to program a computer to control a product.	*use number of components in circuit *program a computer to control product	*incorporate switch into product *confidently use number of components in circuit *begin to be able to program a computer to monitor changes in environment and control product	*use different types of circuit in product * think of ways in which adding a circuit would improve product * program a computer to monitor changes in environment and control product

Progression of DT Skills

Key Vocabulary	**Ongoing objectives** different, same chalk, crayons, draw, drawing, lines, marks, objects, pen, pencil, cut, join, scissors, shape, snip colour mixing, colour, lines, marks, mix, objects, paint, paintbrush, model, modelling dough, shape, tools, colour, fabric, patterns, food, fruit, mix, smell, stir, taste, vegetables	**Ongoing objectives** different, same chalk, crayons, draw, drawing, lines, marks, objects, pen, pencil, cut, join, scissors, shape, snip colour mixing, colour, lines, marks, mix, objects, paint, paintbrush, model, modelling dough, shape, tools, colour, fabric, patterns food, fruit, mix, smell, stir, taste, vegetables	**What are playgrounds like around the world?** designing: drawing, user, model, plan • making: equipment, parts, construction kits, join, fix • knowledge and understanding: framework, movement, structure, weak, strong, on top of, underneath, side, edge, surface, thinner, thicker, corner, point, symmetrical edge, straight, curved – names and shapes of materials which are used in full-size playground equipment e.g. metal, wood, plastic – types of playground equipment e.g. swing, see-saw, roundabout, climbing frame, slide, rocking horse – names of mathematical 2D shapes e.g. circle, triangle, square, rectangle and 3D shapes e.g. cuboid, cube. **What fruit and vegetables should we take on a teddy bear's picnic?** designing: choosing, investigating, tasting, arranging, experimenting, popular, sort, block graph, pictogram • making: washing, cleaning, peeling, cutting, slicing, grating • knowledge and understanding: salad, fruit, vegetables, peel, flesh, skin, grater, chopping board, peeler, seeds, pips, stalk, juice, root, leaf, stone, bunch – sensory e.g. crisp, sharp, juicy, sweet, sour, sticky, squashy, smooth, crunchy, scented, waxy. **What can I use to make a picture move?** designing: idea, discuss, choose, drawing, labelling • making: hole punch, paper fastener, join, cut carefully, planning • knowledge and understanding: moving,	**Why do people make and use puppets?** designing: purpose, ideas, discuss, explore, predict, guess, survey, table, venn diagram, most/least common • making: joining, combining, connecting, testing, punching • knowledge and understanding: vehicle, wheels, chassis, axles, doweling, hole punch, logo, distance. **Moving Vehicles: What makes vehicles move?** designing: user, list, label, drawing, ideas, mock-up, choose, decide, evaluate, try out ideas, standard unit • making: plan, template, fabric, cutting out, sewing, needle, running stitch, gluing, adding • knowledge and understanding: character, puppet, seam, stitch, thread, strong, quality, features, strengthen, reflective symmetry, position, to, towards.	**How should we design and package our product to appeal to the target audience?** designing: font, graphic, decision, evaluating, criteria, fit for purpose, holds • making: scoring, tabs, adhesives, join, assemble, accuracy • knowledge and understanding: three-dimensional (3D) shape, cube, cuboid, prism, net, vertex, edge, face, packaging, shell structure, breadth, capacity. **Which sandwich best represents Britain?** designing: texture, taste, appearance, healthy, preference, criteria, cost, questionnaire, data, frequency diagram • making: cut, mix, spread, slice, blend, grate, chop, chopping board, knife, grater • knowledge and understanding: sandwich, filling, ingredients, fridge, food groups, hygiene, high risk, healthy eating, 'balanced plate', thick, thin – sensory e.g. sweet, sour, bitter, salty. **How might a monster defend a hillfort?** designing: brainstorm, suggestion, evaluate, ideas, constraints, appropriate, graph, data, sort, order, set, label, title, list, probable, possible, impossible • making: planning, storyboard, components, fixing, tubing, syringe, attaching, finishing • knowledge and understanding: control, pneumatic system,	**Was carrying money easier in Medieval times?** designing: user, purpose, design criteria, model, evaluating, labelled drawings, stiffening, reinforcing, coins, notes • making: pattern/templates, strength, weaknesses, accurate, finishing • knowledge and understanding: fabric, fastening, compartment, zip, press stud, clasp, hook and eye, button, buckle, seam, seam allowance, reinforce, gusset, dye, embroidery – properties: strength, hardwearing, stretch, fray. **Can we model with light?** designing: user, specific, plan, labelled drawings, decide, list, classify, specification, design criteria • making: clip, rectify, fault, screw, join, connect • knowledge and understanding: electricity, circuit, battery, battery holder, bulb, bulb holder, wire, insulation, crocodile connector, aluminium foil, switch, reflector, energy, control, automatic. **How can you make a picture book come to life?** designing: model, mock-up, plan, fit for the purpose • making: fold, adhesive, scoring, cutting, joining, temporary fixing, permanent fixing • knowledge and understanding: linkage, lever, pivot, flexible, shape, joint, hinge, area, surface, covers – types of movement e.g. rotary, linear	**How can we build a moving toy that doesn't need batteries?** designing: sequence, annotated diagram, sketch, decision, choice, prototype, model, communicate • making: shape, assemble, accurate, saw, mark out • knowledge and understanding: cam, mechanism, movement, linear motion, rotary motion, pivot, off-centre, axle, force, framework, follower, guide, offset, shaft, elliptical, spiral, transfer. **How can musical instruments be cost effective and functional?** designing: investigate, survey, plan, research, texture, intention, structure, outcome • making: mouldable material, mould, moulding, adhesives, polyvinyl acetate (PVA) wood glue, shaping, cutting, recreate, form, structure, reinforce • knowledge and understanding: sound, note, pitch, duration, dynamics, tempo, timbre, hollow, solid, recycling.	**Stained Glass Biscuits: Treats, decorations or both?** diet, healthy, varied, balanced, nutrition, prepare, cook, savoury, sweet, dessert, dish, technique, seasonality, ingredients, grown, reared, caught, processed, rations, method, steps, cuisine, influence, design, marketing, materials **How do I make footwear fit for an Ancient Greek?** designing: specification, flow chart, mock-up, accurate, users, fabric swatches, working drawing • making: pattern/template, working properties • knowledge and understanding: seam, seam allowance, insulation, sole, upper, inner, reinforce, right side/wrong side, stitch, stitching, tacking, wadding, sewing machine, hem.

Progression of DT Skills

			handle, lever, pivot, pull, push, slider, direction, blade, metal, balance, movement, forward, backwards, order, sequence, length.		pressure, inflate, deflate, input, output, pump, hinge, fastest, slowest, often, always, sometimes, never.			

Progression of DT Skills