

Design and Technology Framework

Using relevant Nuffield Primary Solutions Project on a Page from Year 1 onwards.

Aspect of DT: Mechanisms

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	-Junk Modelling	-Junk Modelling	Sliders and levers <u>Which parts of your picture should move?</u>	Wheels and axles <u>Moving vehicle – Balloon cars</u>	Levers and linkages <u>Pop up volcano poster.</u>		Pulleys or Gears <u>Solar System Model</u>	CAMS project <u>Moving toy</u>
Skills	Simple cutting, shaping and joining skills, using scissors, glue, paper fasteners and masking tape. Understand the use and purpose	Simple cutting, shaping and joining skills, using scissors, glue, paper fasteners and masking tape. Working with paper and card to make flaps and hinges Understand the use and purpose	Explore and use mechanisms such as flaps, sliders and levers Gain experience of basic cutting, joining and finishing techniques with paper and card	Explore different axles. Gain experience of different ways to make axle holders and wheels (fixed and free moving). Children can mark out, hold, cut and join different materials and components correctly (inc. card, plastic and wood).	Can use flaps, sliders and levers correctly. Can use fixed and loose pivots. Explore different lever and linkage mechanisms: -linear -reciprocating -rotary -oscillating Know how to strengthen and stiffen a product.		Explore different types of pulleys and what happens when you use different sized pulleys. Explore the use of gears and experiment with gear ratios.	Experience and understand how cams work. Explore drilling holes in different positions on a cams to create different cams Explore different types of movement using cams – oscillating, reciprocating and rotating
Vocabulary	Cut, scissors, snip, hold	Cut, tear, shape, straight, curved, paper fasteners, stick	Mechanism, lever, pivot, paper fastener, curve, wheel, disk, centre, bigger, smaller	Axle, axle holder, chassis, friction, dowel	Mechanism, lever, linkage, slot, guide, bridge, loose pivot, fixed pivot, system		Control, 3D, 2D, pulley, clearance, rotation, slots, series, parallel	Outline, shape, trace, detail, net, length, width, height, proportion, mechanism, crank, crank and slider, cam, shaft, cam and lever, movement, rotation, oscillation, reciprocation, specification

Aspect of DT: Structures

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>-Junk modelling - Construct with natural materials in woody wanderers. Open ended activities -Large building blocks -Lego - Using large scale equipment to make bridges, ramps, tracks in CP.</p>	<p>-Junk modelling -Designing and making our home - Structures related to fairy tales, houses for the Three Little Pigs, bridge for Billy Goats Gruff etc. -Lego (Child led project) -Den making -Construction blocks - Using large scale equipment to make bridges, ramps, tracks in CP.</p>	<p>Freestanding structures <u>Lego 3D map of the classroom</u> (Links with Geography mapping skills)</p>	<p>Freestanding structure <u>Photo Frames</u></p>	<p>Shell structures <u>Confectionary box (nets)</u></p>	<p>Shell structures <u>Does this game stop you from being bored? – board game</u></p>	<p>Frame structures <u>Shelters</u> Link with Anderton trip</p>	
Skills	<p>Using scissors, hole punch and other tools joining card and paper Joining card and paper using different methods Understand the use and purpose</p>	<p>Using scissors, hole punch and other tools joining card and paper Joining card and paper using different methods for different purposes Understand the use and purpose</p>	<p>Experience of using different joining, cutting and finishing techniques with paper and card Begin to understand that folding materials can help to make them stiffer and stronger</p>	<p>Know how to use different joining, cutting and finishing techniques with paper and card. Choose appropriate material to create a free standing frame. Explore different techniques to help make structure stiffer and stronger</p>	<p>Experience of constructing 3D shapes from a pre-drawn net Experience of measuring, marking out, scoring, cutting</p>	<p>Can measure, mark out, score, cut, join and shape accurately Can use different techniques to help stiffen and strengthen structures</p>	<p>Develop measuring, marking, cutting, shaping and joining skills using a junior hacksaw, G clamp, bench hook, square section wood, card triangles and hand drill</p>	
Vocabulary	<p>Why? What? How? Names of tools, create</p>	<p>Equipment, tools, squeeze, push, join, together, thread, punch, purpose</p>	<p>Freestanding structure, frame structure, shell structure, stability, buttress, brick bonding, mock-up</p>	<p>Wheel, roll, path (of circle, centre, tube, features (on a face), wind, glitter travel), straight, zigzag, bracket, slit, weak, expression (on a face) up and down, cylinder, strong, easy, difficult</p>	<p>Cuboid, edge, face, font, net, prism, scoring, shell structure, vertex</p>	<p>Template, square, preference, practical, cost effective, right angle, sawing board, cutting mat, hacksaw, sand paper</p>	<p>Modelling, compression, strut, tension, tie, diagonal, horizontal, vertical, triangulation, frame structure</p>	

Aspect of DT: Textiles

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	- Opportunities for weaving and threading - developing fine motor skills.	- Opportunities for weaving and threading - developing fine motor skills. - Make clothes for the giant from the Smartest Giant in Town – links to ‘all about me’ A1.	<u>Hand puppets</u> (link to science animal topic).	<u>Place mat with name</u>	2D and 3D products <u>Cushion</u>	2D and 3D products <u>Pencil case/purse</u>	Combining different fabrics <u>Mobile Phone Case</u>	Fast fashion Combining different fabric shapes.
Skills	Explore and use different fabrics	Explore and use different fabrics Cut and join fabrics with simple techniques	Explore use of templates. Start to use running stitch . Join fabrics using a running stitch	Cut out shapes from templates Use cross stitch to embroider name. Consolidate use of running stitch to attach materials together.	Add further decoration to work using running stitch and cross stitch . Use over sew to join pieces of material together.	Can use a pattern and make a prototype Use blanket stitch to join material together. Add further decoration to work using applique. Use of fastenings: buttons.	Can use pattern pieces and leave a seam allowance Use back stitch to join material together. Use of fastenings: Press studs.	Can pin and tack fabrics Use embroidery for decoration. Use of fastenings: zips
Vocabulary	Thread, sew, weave, in/out, up/down, fabric descriptions	Binca, needle, thread, fabric, applique, fray, mock-up, seam, sew, template, gluing, stapling, pinning, safety pin, running stitch	Binca, needle, thread, fabric, applique, embroider, fray, mock-up, seam, sew, template, gluing, stapling, pinning, safety pin, finishing, running stitch, cross stitch	Threader, applique, embroider, pattern, template, seam, prototype, aesthetics, pinning, template, joining, fastening, over sew, running stitch, cross stitch	Threader, applique, embroider, pattern, template, seam, prototype, aesthetics, pinning, template, joining, blanket stitch, velcro	Mock-up, pattern, template, seam, specification, tacking, working drawing, fastenings, back stitch	Mock-up, pattern, template, seam, seam allowance, specification, tacking, working drawing, fastenings, computer aided design, computer aided manufacture	Weave, fabric descriptions, thread

Aspect of DT: Electronics

	<i>Nursery</i>	<i>Reception</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
						Electrical systems <u>Light Up Cards</u>		Electrical systems <u>Night Lights</u> link with computing
<i>Skills</i>						Create a simple series circuit Use a range of input and output devices Avoid making short circuits		Write a sequence of instructions Use a control language or create a flowchart Use input and output devices connected to a standalone box
<i>Vocabulary</i>						Circuit, conductor, insulator, prototype, push to break/make switch, reed switch, toggle switch, system, output device, input device		Modelling, open switch, closed switch, normally open, normally closed, input devices, output devices

Aspect of DT: Cooking and Nutrition

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	-Making a fruit salad -Baking	-Biscuits -Fruit Salad/soup (differentiated from Nursery by types of fruits/veg, size, level of independence application of skills).	Preparing vegetables/Fruit Smoothies	Preparing vegetables/Fruit <u>Pizza</u>	Healthy and varied diets – <u>Sandwiches</u>	Healthy and varied diet <u>Toasties</u>	Celebrate culture and seasonality <u>Bread (Flavoured)</u>	Celebrate culture and seasonality <u>Scones/biscuits</u> <u>Afternoon Tea</u>
Skills	Experience common fruit and vegetables using appropriate utensils. Cutting soft fruits and vegetable using appropriate utensils. Begin to develop a food vocabulary using taste, small, texture and feel.	Experience common fruit and vegetables using appropriate utensils and describe sensory response. Begin to widen their food vocabulary using taste, small, texture and feel.	Begin to develop children's peeling and chopping skills	Begin to use techniques such as finer cutting, slicing and grating	Be able to use a range of techniques such as peeling, chopping, slicing and grating, spreading . Use of claw technique for cutting.	Further develop previous skills Use of bridge technique for cutting.	Gain confidence in the skills of peeling, chopping, slicing, grating. Develop skills of mixing, kneading and baking	Become increasingly skilled at peeling, chopping, slicing, grating, mixing, kneading and baking
Vocabulary	Chop, peel, mix, stir	Taste, texture, sharp, scoop, measure, peel, chop	Taste, texture, colour, flatten, mash, spread, scoop, handle, blade, edge, peel, pips, stones, core, estimate, ingredients, measure, compare	Fruit, vegetable, nutrients, pith, salad, sensory evaluation, kebab	Appearance, texture, sensory evaluation, preference test, processed food	Appearance, texture, taste, aroma, sensory evaluation, preference test, processed food, mixing, kneading, baking, yeast	Finishing, knead, bran, dough, yeast, unleavened bread	Finishing, rubbing in, knead, bran, endosperm, germ, yeast, unleavened bread