D&T Long Term Plan 2021 – 2022

Lessons to run over 9-week blocks, alternating Art and D&T.

KS1 classes will have a 50 min lesson each week. 9 in total.

KS2 classes will have a lesson every third week. They will have 3 x 2.5 hr lessons in total.

	Reception	Yr 1	Yr 2
D & T		**Freestanding structures**	**Sliders and levers**
Topic link		Our local area	
NC		To design purposeful, functional, appealing products for themselves and other users. To generate, develop, model and communicate	To design purposeful, functional, appealing products for themselves and other users based on design criteria. To select from and use a range of tools and equipment to perform

		their ideas through talking and drawing. To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. To select from and use a wide range of materials and components, including construction materials. To build structures, exploring how they can be made stronger, stiffer and more stable	practical tasks [for example, cutting, joining and finishing]. To explore and evaluate a range of existing products.
Skills		To select the best material for a purpose. **To use joining techniques to strengthen and create shape and form.** To evaluate a structure based on its stability.	To use rulers and scissors with increasing accuracy. **To use a hole punch and split pins (or pivoting device) to create movement.** To select form the most appropriate materials.

		To use cut and fold with some accuracy.	**To use finishing techniques to make a product appealing.**
People of interest			
Vocab		Cut, stable, strength, corner, structure, shelter, stiff, design, evaluate.	Pivot, slider, lever, design, evaluate, finish, joining.
Outcome		A freestanding model of an animal shelter.	A card for someone with moving parts.
Equipment & Materials		Paper Card Scissors Pre-cut small fold of card for joints Pre cut strips of paper for sides of shelter Tissue paper Masking tape Glue sticks Images of shelters Paper straws	A4 Card Paper Split pins Pre-cut strips of card for levers Scissors Masking tape Coloured pencils Rulers

		Wool String Wooded lolly sticks	
Differentiation		Photographs, word banks, extra or less information in labelling. TA support and modelled writing/drawing. Use of icons/ /symbols to gauge their feelings about their learning.	Photographs, word banks, support using scissors, ruled lines as cutting guides. Printed images to colour. Split pins for more able to create extra moving parts using different techniques. Use of icons/ /symbols to gauge their feelings about their learning.
Lesson 1		Look at pre-existing shelters and discuss their use. Complete the D&T criteria sheet and draw their shelter, labelling if able.	Look at a series of books with moving parts and begin to plan our card using a criteria template. Discuss who it could be for and how you will show that.
Lesson 2		Introduce how to join two pieces of card together using the smaller folded card pieces.	Introduce how to construct a lever. CHN begin to make their card with a lever.

		CHN will create a structure using card strips and folded joins.	
Lesson 3		Model how to create wall supports suing lolly sticks, glue and masking tape. CHN to build wall supports.	Continue making.
Lesson 4		Model how to use tissue paper to create walls and a roof. Recap previous joining techniques.	Introduce using a split pin to increase movement options. CHN to incorporate this into their card.
Lesson 5		Continue making. Focus on making the structures stronger and more stable.	Finish card with moving parts
Lesson 6		Evaluate structure using criteria template.	Evaluate Card using the template
Lesson 7			
Lesson 8			
Lesson 9			

	Reception	Yr 1	Yr 2
D & T		**Wheels and axles / Preparing fruit and veg**	**Templates and joining / preparing fruit and veg**
Topic link		Cars	
NC		To use the basic principles of a healthy and varied diet to prepare dishes. To understand where food comes from. To design purposeful, functional, appealing products for themselves and other users based on design criteria. To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.	To use the basic principles of a healthy and varied diet to prepare dishes. To understand where food comes from. To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. To explore and evaluate a range of existing products. To evaluate their ideas and products against design criteria.

		To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. To explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	To build structures, exploring how they can be made stronger, stiffer and more stable.
Skills		To design a moving vehicle **To plan and design a moving vehicle for a purpose** To cut, assemble and join pieces together to create a product **To understand how wheels and axles make things move** To use scissors with some accuracy	**Researching existing products** Identifying a target audience and designing a product for them **Threading a needle** Choosing the best materials for a product **Creating templates from paper and card** Using scissors with accuracy **Learning joining techniques for paper and fabric**

		To evaluate our own and other children's products	Sewing two pieces of fabric together **Evaluating and making changes based on feedback**
People of interest			
Vocab		Vehicle Wheel Axle Chassis Assemble Join Fixed Free Friction	Design Template Criteria Pattern Decorate Mock-up Fabric Joining finishing
Outcome		Creating a car that moves using an axle.	Creating a puppet based on a fairy tale.
Equipment & Materials		Cardboard Scissors Masking tape	Assorted fabrics Metal and plastic needles Needle threaders

		Pre-cut circles and MDF wheels Pre-cut Dowel rods Paper and plastic straws	Embroidery, wool and cotton thread Paper and scissors for templates Single hole punches Hot glue gun
Differentiation		Pre-cut and partially assembled sections. Pre-selected parts within a pack to be assembled. Diagrams to support assembling. TA to support less abled CHN	Larger / smaller needles. Hot glue to replace sewing. Needle threaders. Thicker / thinner fabrics. Simplified / more complex templates to follow. Extra details to be cut, assembled and sewn/ glued on.
Lesson 1		Researching and dissecting cars and toys with axles. Completing their design criteria.	Researching pre-existing puppets and fabric-based toys. Look at different templates. Completing their design criteria.

Lesson 2		Practical skills: cutting, joining assembling	Cutting a range of paper templates and joining using glue and split pin fasteners.
Lesson 3		Choosing the best materials based on our design and beginning to cut and shape our parts	Designing a template for their puppet, using the criteria sheet from the first lesson.
Lesson 4		Using axles and wheels Adjusting wheels and axles (adding more/less/changing size etc. Discussing what happens with different sizes.	Using the previous paper template to draw around it onto two pieces of fabric, ready to sew in the later lessons.
Lesson 5		Finishing the chassis/ decorating	Sewing
Lesson 6		Decorating and completing	Sewing and completing
Lesson 7		Evaluation form, presenting their vehicles and giving per feedback.	Evaluation form and making short plays to be performed and recorded.
Lesson 8		Preparing fruit and veg.	Preparing fruit and veg. Naming and using kitchen utensils on plasticine fruit and veg.

		Naming and using kitchen utensils on plasticine fruit and veg.	Looking at healthy diet pyramids.
Lesson 9			

Art and D&T Long Term Plan

Each block to run over 9 weeks.

KS2 will have a lesson every third week. 3 lessons in total.

KS1 will have a lesson each week. 9 in total.

	Yr 3	Yr 4	Yr 5	Yr 6
D & T				
Topic	**Electrical circuits**	**Mechanisms: linkages and levers**	**Textiles: stitching**	**Textiles: Fabric Patterns**
NC	To understand and use electrical systems in their products [for example, series circuits incorporating switches,	To use research and develop design criteria to inform the design of products that are fit for purpose, aimed at	To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to	To 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.

	bulbs, buzzers and motors. To apply their understanding of how to strengthen, stiffen and reinforce structures To investigate and analyse a range of existing products. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	particular individuals or groups. To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	their functional properties and aesthetic qualities. To investigate and analyse a range of existing products. To apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To investigate and analyse a range of existing products. To apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
Skills	To understand how a simple electrical circuit works.	To understand how a linkage connects two parts together, so they can move or pivot.	To thread a needle and put a knot in the thread. **To use a running stitch.**	To thread a needle and put a knot in the thread. **To use a running stitch.**

	To know that more bulbs would also equal more power from batteries. To plan, design and make a light box cover, using scissors to create internal cuts. **To understand that an electrical current needs to go in a certain direction.** To learn simple joining and strengthening techniques to	**To understand how a lever is used to move a linkage.** To plan and design a product for a specific purpose. **To use scissors and hole punch tools with accuracy.** To understand how these skills are used in other areas.	To use a running stitch to sew two pieces of fabric together. **To use a whip (or over) stitch.** To design and plan a pouch made from fabric. **To use stitching techniques to create a pouch.** To evaluate a product.	To use a running stitch to sew two pieces of fabric together. **To use a whip (or over) stitch.** To use 2D shapes to create a fabric pattern. **To design and plan a bag made from fabric.** To use stitching techniques to create a bag. **To evaluate a product.**

	create their light box.			
People of interest				
Vocab	Bulb Circuit Battery Switch Crocodile clip Current Flow Positive Negative	Linkage Lever Hole punch Design Designer Animation Evaluate	Fabric Stitch Sew Running stitch Whip stitch (or over-stitch) Needle Thread Pouch Design Evaluate	Fabric Stitch Sew Running stitch Whip stitch (or over-stitch) Needle Thread Pouch Design Evaluate
Outcome	To use a working electrical circuit to make a light box.	To use linkages and levers to create Shadow puppets based on the story of The Little Mermaid.	To use simple stitching techniques to create a pouch or small bag.	To create a fabric pattern to design and make a simple carrier bag.

Equipment & Materials	Bulbs Bulb holders Batteries Crocodile clips Cardboard Masking tape Felt tips Electrical switches	Cardboard Scissors Masking tape Paper straws Split pins Single hole punches	Fabric Needles Thimbles Thread Fabric scissors Buttons Needle threaders	A3 paper Rulers Fabric Needles Thimbles Thread Fabric scissors Buttons Zips Velcro Needle threaders
Differentiation	Mixed ability groups. TA to support less abled. Less/ more bulbs / batteries / switches.	Pre-made puppet sections to cut out. Support using scissors. TA support for specific needs. Pre-cut holes using hole punch tool.	Different sized needles. Needle threaders. Embroidery fabrics/ thread / needles. Use of buttons to close. Use of varied stitching.	More complex bag designs / multiple shapes. Different sized needles. Needle threaders. Embroidery fabrics/ thread / needles. More / less complex ways of closing (zips etc.)

	Pre- drawn circuit diagram to follow. Pre-made shell structure. Pre-made designs. Support using scissors to cut out designs.	Simplified / more complex moving parts.	Stitching on the inside of the fabric.	Use of varied stitching. Stitching on the inside of the fabric.
Lesson 1 Design	Introduce all elements of the circuit. Take apart a working torch. Safety discussion (use of batteries- especially not connecting clips	Introduce D&T and how it is about designing and creating a product with a purpose. Show shadow puppet version of Three Little Pigs and discuss how	Introduce the design criteria and evaluation process of D&T. Look at some pouches and discuss how they are made, where the seams are (inside) and for what purpose. Run through safety procedures with	Introduce the design criteria and evaluation process of D&T. Look at some bags and discuss how they are made, where the seams are (inside) and for what purpose. Show some fabric patterns and explain how they help create a bag. CHN to use A3

	to both positive and negative points). Experiment with creating a circuit. Design lightbox cover.	the puppets were made. Read the story of The Little |Mermaid and discuss how we could create a shadow puppet version. Look at how linkages and levers work and begin designing their puppet. Complete design criteria.	sewing (needles/ fabric scissors). Practice tying knots in wool and then move to tying knots in cotton and stick them into books. Practice threading needles (differentiate with needle size/ thread and wool thickness). Introduce a running stitch and CHN will practice on small swatches of fabric. Introduce a whip stitch and practice. Design and plan their pouches.	paper and rulers to make their own and stick into books. Run through safety procedures with sewing (needles/ fabric scissors). Practice tying knots in wool and then move to tying knots in cotton and stick them into books. Practice threading needles (differentiate with needle size/ thread and wool thickness). Introduce a running stitch and CHN will practice on small swatches of fabric. Introduce a whip stitch and practice. Design and plan their bags.
Lesson 2 Make	Create working circuit.	Begin making	Pouch making	Bag making.

				Introduce zips/ velcro/ buttons and show how they are all attached.
Lesson 3 Evaluate	Increase bulbs/ batteries. Create light box cover. Evaluate.	Complete making and record their animation using a shadow screen. Complete evaluation form.	Pouch making / finishing. Completing evaluation form.	Bag making / finishing. Completing evaluation form.

	Yr 3	**Yr 4**	**Yr 5**	**Yr 6**
D & T	**Shell structures / healthy and varied diet**	**Mechanisms: pneumatics**	**Food: celebrating culture and seasonality**	**Mechanical systems: cams**
Topic link				

NC	To 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. To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To investigate and analyse a range of existing products. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To apply their understanding of how to strengthen, stiffen and reinforce more complex structures. To understand and apply the principles of a healthy and varied diet.	To use research and develop design criteria to inform the design of innovative, functional, appealing products that is aimed at a particular group of people. To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams and prototypes. To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities	To understand and apply the principles of a healthy and varied diet. To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. To understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.	To use research and develop design criteria to inform the design of innovative, functional, appealing products that is aimed at a particular group of people. To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams and prototypes. To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities To investigate and analyse a range of existing products.

		To investigate and analyse a range of existing products. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To understand how key events and individuals in design and technology have helped shape the world To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].		To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To understand how key events and individuals in design and technology have helped shape the world To apply their understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].
Skills	Understanding about a healthy and varied diet **Knowing how to peel, chop, slice and grate**	To understand how simple pneumatic devices work **To use scissors, rulers and**	To understand where food comes from, where it is grown and how it is processed **To know how to measure ingredients**	To understand how a Cam mechanism moves specific parts. **To recognise that the shape of each Cam**

	Select the best tool from a range of equipment **Measure, mark, score and assemble** Know what a NET shape is **Creating NET shapes** Designing a product for a purpose **Evaluating a product for a purpose** **Use joining techniques to strengthen and make something more stable** Using the Bridge Hold and the Claw Grip when cutting fruit/veg	**measuring with accuracy** To improve their work through testing, peer analysis and making prototypes **To create a set of criteria** To draw expanded models **To use a variety of materials to make a product appealing**	**using measuring equipment** To be able to use kitchen equipment safely (knives / ovens / stoves) **To use chopping / knife techniques with accuracy (the bridge / the claw)** To understand how to create a varied and balanced, nutritious diet **To have an understanding of the cultures where certain food comes from and the traditions that surround them**	**will create a different movement** To create a set of criteria to make an automata out of cardboard and wood **To use scissors, saws and cutting tools to create shapes with some accuracy** To measure, cut and score with accuracy **To assemble, fasted and secure parts of an automata** To improve their product through testing, peer analysis and making prototypes **To improve their work through testing,**

				peer analysis and making prototypes To evaluate a product based on set criteria **To make annotated, cross sectional and exploded diagrams**
People of interest	Nadiya Hussain Jamie Oliver		Nadiya Hussain Jamie Oliver	
Vocab	Shell Structure Cut Score Mark Measure Join Assemble Arrange Grate Slice Chop	Pneumatic Device Components Fixing Attaching Tubing Plunger Compression Pressure Inflate Deflate Process	Ingredients Yeast Dough Unleavened Utensils Combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, shape, sprinkle, crumble	Cam, snail cam, off-centre cam, peg cam, pear shaped cam. Automata. Follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating

	Peel	Pump Seal Prototype	Carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury Source Seasonality	motion, reciprocating motion.
Outcome	Creating a piece of cardboard packaging for fruit or vegetables.	Creating a toy that opens and closes using a pneumatic device.	Making scones and pasta with a pasta sauce.	Creating a cardboard automata box with moving parts.
Equipment & Materials	Paper Card Scissors Tape PVA glue Glue sticks Rulers Plastic knives Metal knives Plasticine	Plastic bottles Plastic tubing Masking / Sello tape Balloons Paper Card Fabric Scissors Split pin fasteners String	Measuring scales Measuring jugs Measuring spoons Wooden spoons Chopping boards Knives (plastic and metal) Whisks Plastic bowls Cheese graters	Cardboard sheets (for making boxes/ frames) Cardboard (for making levels / Cams) Pre-cut wooden Cams Dowel rods Saws Table clamps (G clamps) Rulers

	Assorted soft fruits and veg: bananas/ kiwi/ cucumber/ tomatoes **(check for allergies beforehand)** Chopping boards Food pyramid sheets to share		**Check for allergies before ordering** Plain Flour (multi purpose-not Self Raising) Butter (or vegetable spread) Baking powder Yeast Milk (and dairy free) Sugar Jam Cream Eggs Oil Tinned tomatoes Salt Fresh tomatoes Oregano Stock cubes Cheese	PVA glue Masking and Sello tape Scissors Hand drills Sand paper Gardening / builders gloves Hot glue guns (**we need quite a few, so order the smaller glue sticks)**

			Recipes	
Differentiation	Pre-made NET shapes. TA/T support using scissors/ scoring etc. Softer/ harder fruit or veg to cut. Plastic knives for less able CHN. Forks to hold fruit/ veg in place.	Pre-chosen set of materials to be assembled / partially assembled. Mixed ability groups. Less / more working parts in their plans. TA specific support. Images to support ideas.	**Due to the use of ovens / stoves, half the class will work with an adult in the kitchen at a time, so supervision is more manageable (ideally 2 adults in the kitchen).** Mixed ability pairs / small groups, supporting less able. TA / T support for individuals with specific needs. Recipes altered for more / less information.	Mixed ability groups. TA to address any specific needs. Pre-cut and partially assembled Cam models. Sets of clear and simple instructions to build an automata toy. More / less moving parts. Visual diagrams to follow and help support drawing.

		Photographic evidence, rather than written.	Language simplified / extended within recipes.	
Lesson 1	Learning about a healthy diet. Cutting fruit using the bridge method. Cutting using the Claw method. Complete food pyramid into their books.	Look at a range of toys that use pneumatic devices (Water guns, rocket pumps, whoopy cushions etc.). Look at the science and engineering and begin to design our own using the criteria sheet. CHN will begin to experiment with the equipment.	Look at what a varied, nutritious and balanced diet looks like, consulting the food pyramid and considering our own daily nutrition. All will fill in their criteria sheet. Look at a scone recipe. Make scone dough in small groups of 4/5. Half the class will be take to the Kitchen Classroom to bake, The	Look at Cam mechanisms within daily life (car engines) as well as within toys. CHN to see some working Cams / Automata models and get the opportunity to use them. Model how to use the tools and equipment safely. CHN to plan their own Automata toy using the design criteria sheet and will begin

			other half to the Kitchen to bake theirs. Once back in the D&T room, CHN will whip and thicken the cream and then assemble the cooled scones with jam and cream.	to create and source the materials they will need.
Lesson 2	Begin design criteria for shell structure Introduce NET shapes, begin to plan own.	Build the pneumatic toy. Pausing regularly to assess.	CHN will look at traditional Italian food and will use a recipe to make pasta in small groups of 3 or 4. Once the pasta dough is resting, we will use a recipe to make a tomato sauce and will prepare the grated cheese.	Model how to use the table clamps and saws safely (gloves for CHN who are not confident). Cut dowel to the correct sizes and create cardboard Cam shapes using cardboard. Model how to measure and build the Automata box (using the hot glue

			We will then split into 2 groups to use the Kitchen Classroom stove / Kitchen, coming back to the D&T room to assemble and put the food together.	guns) which will need to be completed by the end of the lesson.
Lesson 3	Complete NET shape/ design. Complete evaluation form.	Complete pneumatic toy, finishing and making appealing. Complete evaluation.	Recap the need for nutrition/ balanced diet. CHN will create a recipe / information sheet on one of the things they made (pasts / sauce / scones) looking their information to the culture.	CHN will continue building their Automata using Cams mechanisms. CHN to use a series of evaluation-based questions to create their evaluation text in their books.

National Curriculum coverage across the year groups.

Art

National Curriculum requirements	KS1

National Curriculum requirements	KS2

D & T

National Curriculum requirements	KS1
Design: To design 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:** To 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: To explore and evaluate a range of existing products ♣ evaluate their ideas and products against design criteria **Technical knowledge:** To 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:** To use the basic principles of a healthy and varied diet to prepare dishes ♣ understand where food comes from.	

National Curriculum requirements	**KS2**
Design: To 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:** To 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:**	

To 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:** To 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:** To 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.	