KPI D&T Curriculum Plan – Cycle A

D&T TECHNIQUES – MEASURING, CUTTING, JOINING (10 lessons)

Prior Knowledge	National Curriculum Objectives Covered	End of Unit Assessment	
EYFS: • To use simple tools and techniques competently and appropriately • To select tools and techniques needed to shape, assemble and join materials they are using • To use one-handed tools and equipment, e.g. makes snips in paper with child scissors • To safely use and explore a variety of materials, tools and techniques	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	Y1 • Explore using tools e.g. scissors and a hole punch safely • With help measure, mark out, cut and shape a range of materials • Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape	Y2 • Begin to select tools and materials; use correct vocabulary to name and describe them • Learn to use hand tools safely and appropriately

Key Concepts	Links Made	Vocabulary
KC4 - Use technical knowledge	Maths – 2D shapes Maths – measuring	Measure, accurate, line, straight, stable, steady, edge, start, cut, specific, properties, straight, specific, rectangle, square, measurement, size, apply, skills, explore, evaluate, joining, joining techniques, selection, effect, experiences, ideas

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Key Concept(s)	Learning Intention	Crucial Knowledge	Activities	Resources and Vocab
D&T Techniques – Measuring, Cutting, Joining (10 Lessons)				
KC4 - Use technical knowledge	**To use rulers and scissors to measure and cut accurately**	Measure and draw a straight line by: - placing the ruler straight on the page, - starting at 0 - holding the ruler steady - pressing on with a pencil to draw a straight line - stopping at the given number Hold scissors effectively to cut along their line	**Retrieval** – show children pictures of different equipment used to measure and cut. What are they called? Explain left handed and right handed scissors and heck children know which they should be using Model how to **measure** a simple line on visualiser using paper/card and a ruler. Make sure children understand using hand/fingers to keep the ruler steady and straight while measuring. Model starting at the edge of the paper and with the ruler at 0. In groups, work with children to cut a **specific measurement** with paper and card. While cutting, compare the properties of paper and card (e.g. strong, flexible, thin, hard/easier to cut). Put rulers and paper/card into provision for children to continue exploring.	Pictures of equipment Card Paper Scissors (including left handed scissors and self-sprung scissors) Non-slip rulers (including left handed rulers) **Vocab** Measure, accurate, line, straight, stable, steady, edge, start, cut, specific, properties
KC4 - Use technical knowledge	**To use rulers and scissors to measure and cut accurately**		**Retrieval** – give children a drawing lines challenge card (appropriate for their ability) to complete Continue previous lesson	
KC4 - Use technical knowledge	**To measure and cut a specific size**	Measure a square or rectangle by: - starting at 0 - using the ruler to draw a straight line	**Retrieval** – In pairs/small groups, children discuss previous lesson and what they remember about cutting a straight line to a specific size Explain that today we are going to move on and draw and cut out a rectangle or square. *Link to maths – 2D shapes*	Card Paper Scissors (including left handed scissors and self-sprung scissors)

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		- keeping the ruler steady - drawing all 4 lines Hold scissors effectively to cut out their rectangle or square	Model drawing a rectangle or square on a piece of paper, talking about each step as it happens. When finished, children talk in pairs to remember the steps. Model cutting out the rectangle or square using scissors, applying the skills from the previous lesson. In groups, work with children to cut out a rectangle/square of a **specific** given size. Add photos to class floor book.	Non-slip rulers (including left handed rulers) **Vocab** Straight, specific, rectangle, square measurement, size, cut, apply, skills
KC4 - Use technical knowledge	**To measure and cut a specific size**		**Retrieval** – look at measuring questions as a class and discuss what has been done wrong Continue previous lesson	
KC4 - Use technical knowledge	**To explore ways to join materials**	Name different methods of joining Apply joining techniques to fasten strips of card together Explain the different joining techniques used	As a class discuss what children know about **joining** and make a mind map (e.g. staplers, split pins, treasury tags and hole punch, glue) of ideas. Display this where children can see it, and add to it during the lesson if needed. Draw or stick pictures next to key words for children unable to read them. Use PowerPoint to introduce joining and add further ideas to mind map. Put a selection of joining materials out and strips of card. Give children a table to record the joining techniques they used (pre-populated/with images/blank). Discuss different joining techniques and the effects they produce.	Joining PowerPoint Card Scissors PVA glue Glue sticks Staplers and staples Masking tape Sellotape Hole punchers Treasury tags Split pins String Strips of card Table to record techniques used (differentiated) **Vocab** Explore, evaluate, joining, joining
KC4 - Use technical knowledge	**To explore ways to join materials**		**Retrieval** – look at mind map created last week, with words covered up. Can children remember what they learnt about joining? Uncover words as they talk about them Continue previous lesson Stick mind map into floor book	

				techniques, selection, effect, effective
KC4 - Use technical knowledge	**To explore ways to join cardboard**	Name different methods of joining cardboard Apply joining techniques to fasten pieces of cardboard together Explain the different joining techniques used	**Retrieval** – look at different joining resources. What are they called? How are they best used? https://www.bbc.co.uk/bitesize/articles/zdqk239 Follow guidance and practise each join, as appropriate for children's fine motor abilities. Continue into next lesson	Cardboard Card Paper Glue Scissors **Vocab** Join, strong, appropriate, purpose, butt joint, flange joint, l brace joint, slot joint, tab joint
KC4 - Use technical knowledge	**To explore ways to join cardboard**		**Retrieval** – use activity or quiz from BBC Bitesize joining page with class Continue previous lesson	
KC3 - Evaluate, critique and test	**To evaluate joining techniques**	Recall different methods of joining paper/card Explore ways to join wood Talk about what worked and what didn't work	**Retrieval** - recap the joining techniques explored last lesson. What if we wanted to join something else? What about joining material such as wood? Do children have any ideas/experiences? Explore/model joining wood with masking tape and glue. Does it stick well? Talk about hot glue guns and model how it can be used to join wood, but do not allow the children to use these. Add ideas to mind map from previous lesson. Keep this for use in provision if children are joining, and for use in future D&T units.	Card Scissors Glue stick Masking tape Glue gun Off cuts of wood **Vocab** Apply, techniques, joining, explore, experiences, ideas
KC3 - Evaluate,	**To evaluate joining techniques**	Talk about what they have learnt during the unit	**Retrieval** – On the board, look at photos taken during previous lessons. Model speaking about one in full sentences. With a talk partner, children practise talking about what they did, techniques/materials they used, if it worked or not.	Photos from previous lessons

critique and test		Record their learning with words, captions or sentences (as appropriate)	Children choose photos from D&T lessons this term to stick in books and annotate with words or captions. Extend children who are able to write sentences about what they did and what they learnt Choose children to present their work to the rest of the class.	

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MECHANISMS – POP UP, LEVERS AND SLIDERS (7 lessons)

Prior Knowledge	National Curriculum Objectives Covered	End of Unit Assessment	
EYFS: • To select appropriate resources and adapt work where necessary • To construct with a purpose in mind, using a variety of resources • To use simple tools to effect changes to materials • To manipulate materials to achieve a planned effect • To use simple tools and techniques competently and appropriately • To select tools and techniques needed to shape, assemble and join materials they are using • To use what they have learnt about media and materials in original ways, thinking about uses and purposes	Design purposeful, functional, appealing products for themselves and other users based on design criteria Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products	Y1 • Start to suggest ideas and explain what they are going to do • Begin to develop their ideas through talk and drawings. Make templates and mock ups of their ideas • Begin to make their design using appropriate techniques • Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape	Y2 • Identify a purpose for what they intend to design and make • Explore and use mechanisms in their products • Start to evaluate their products as they are developed, identifying strengths and possible changes they might make

Key Concepts	Links Made	Vocabulary
KC1 - Design and develop KC4 - Use technical knowledge	Geography – UK (London)	Mechanism, join, move, lever, slider, flap, pop up, explore, type, concertina fold, secure base, attach, stick, practise, design, plan, product, equipment, resources, product, make, create, evaluate, apply

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Key Concept(s)	Learning Intention	Crucial Knowledge	Activities	Resources
Mechanisms (7 Lessons)				
KC4 - Use technical knowledge	**To understand how mechanisms move**	Say what a mechanism is Give examples of mechanisms in the classroom/ school	**Retrieval** – look at measuring questions as a class and discuss what has been done wrong Introduce children to the concept of **mechanisms** using PowerPoint. Identify and label with post-its different mechanisms around the classroom e.g. door handles, hinges, handles on windows, wheels on adult chair. Look at pop up books and talk about the different **methods** used – **levers/sliders**, **pop ups** and **flaps**. Leave books out in the provision for children to explore the mechanisms.	Mechanisms PowerPoint Pop up books e.g. very hungry caterpillar, look inside books Post-its **Vocab** Mechanism, join, move, lever, slider, flap, pop up
KC4 - Use technical knowledge	**To explore ways shapes can be made to move - sliders**	Fold paper or card using a concertina fold Explain why a pop up needs a stable base	**Retrieval** - what **types of mechanisms** did we look at last week? Use BBC bitesize to recap sliders. Teach the children how make a slider by cutting a slit in a piece of paper and inserting a strip of card/lollypop stick into it to slide along. Children practise, supported as needed, and talk about how they are creating their slider. Encourage children to practise making sliders and pop ups when in the provision.	Rulers Card Scissors Paper Glue Masking tape **Vocab** Explore, mechanism, type, move, concertina fold, secure base, attach, join, stick, practise

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KC4 - Use technical knowledge	**To explore ways shapes can be made to move – pop ups**	Cut a slit in a piece of paper Use a strip of card or a lollypop stick as a slider	**Retrieval** - look at different joining resources. What are they called? How are they best used? Talk about how pop ups can be made. Model creating a **concertina fold** using a strip of card and then sticking it onto a rectangle of card for **secure base**, and attach a simple picture to the top. Children practise concertina folds. This can be difficult for children developing their motor and coordination skills – *link to resilience and perseverance*.	
KC4 - Use technical knowledge	**To explore ways shapes can be made to move – levers**	Use a split pin to create a hinged joint Explain how the lever moves	**Retrieval** – use BBC Bitesize sliders activity or quiz as a class Introduce children to levers. Use BBC bitesize if needed. Model following instructions to make a hinged moving mechanism. Use split pin person for children needing a simpler activity. Work with children to follow instructions and create their own waving hand	Waving Hand Instruction sheet Split Pin Person template Split pins Card Rulers Scissors **Vocab** Hinge, moving, mechanism, fulcrum, lever, load
KC4 - Use technical knowledge	**To explore ways shapes can be made to move – levers**		**Retrieval** – pop up, lever or slider? Continue previous lesson	
KC1 - Design and develop	**To design a product that uses a mechanism**	Say what they want to make Draw and label a simple plan	Retrieval - recap **techniques** used for making mechanisms in last lessons (sliders, pop ups, levers) Introduce end **product** for this unit – create a London pop up or slider (e.g. a building as a pop up, or London bus or taxi on a slider or lever) ***link to geography – London***	Planning template Blank paper **Vocab** Design, plan, product,

		Say what they will need to create their slider/pop up	Children decide if they are going to make a pop up or a slider, and what landmark/vehicle they are going to create. Put children into groups (pop ups and sliders) and discuss the techniques and **equipment/resources** they will need. Ask children – how will you remember next week what you wanted to make? Introduce children to the idea of creating a **design** (plan) before creating something. Model completing a design, adding notes and annotations to support ideas. *As this is the first time the children have been introduced to creating a plan, it is a very simple template.* In groups, children to complete their design using the template if needed.	equipment, resources
KC1 - Design and develop	**To apply techniques**	Say what they will need to create their slider/pop up Apply techniques learnt: cutting, folding, sticking, to create a pop up or slider Use finishing techniques to complete the project (e.g. draw a picture)	**Retrieval** – give children a drawing lines challenge card (appropriate for their ability) to complete Give children their designs from last lesson. Talk partners – what are they going to need? How are they going to create their pop up/slider? In groups, children apply the techniques they have learnt to create a pop up/slider of a London landmark or vehicle. Support children to evaluate their product as they go – is that working as well as it could? Can it be changed/improved?	Children's designs Rulers Card Scissors Paper Glue Masking tape/sellotape Felt tips pens/crayons, **Vocab** Design, product, make, create, evaluate, apply

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STRUCTURES (7 Lessons)

Prior Knowledge	National Curriculum Objectives Covered	End of Unit Assessment	
		Y1	Y2
EYFS: • To select tools and techniques needed to shape, assemble and join materials they are using • To use what they have learnt about media and materials in original ways, thinking about uses and purposes • To discuss any improvements they might make or how they would do it differently next time	• Design purposeful, functional, appealing products for themselves and other users based on design criteria • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • Build structures, exploring how they can be made stronger, stiffer and more stable • Evaluate their ideas and products against design criteria	• Start to suggest ideas and explain what they are going to do • Begin to develop their ideas through talk and drawings. Make templates and mock ups of their ideas • Begin to build structures, exploring how they can be made stronger, stiffer and more stable	• Start to generate ideas by drawing on their own and other people's experiences • Begin to develop their design ideas through discussion, observation, drawing and modelling • Start to assemble, join and combine materials in order to make a product • Start to choose and use appropriate finishing techniques based on own ideas • Start to evaluate their products as they are developed, identifying strengths and possible changes they might make

Key Concepts	Links Made	Vocabulary
KC1- Design and develop KC2 - Take risks KC3 - Evaluate, critique and test KC4 - Use technical knowledge	*Forward to link to history – significant individuals*	Architect, role, process, design, plan, building, structure, organic, environment, construction, eco friendly, architecture, insulation, energy, conserve, protect, blueprint, construct, build, apply, cut, join, techniques, critique, evaluate, explain, improve

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Key Concept(s)	Learning Intention	Crucial Knowledge	Activities	Resources and Vocab
Structures (7 lessons)				
KC4 - Technical knowledge	**To understand how structures are made to be strong**	- Know that triangles are a way to make structures strong - Talk about their investigation of strength created by different shapes - Use key vocabulary correctly	**Retrieval** - pop up, lever or slider? Use PowerPoint to introduce children to the terms **engineer** and **architect**. Look at the work of Brunel, who was an engineer. Look at the **bridges** he designed – what are they made of, how are they created? look at the shapes commonly used (triangles) - how did they make it **stronger**? Teach children the term **reinforce/ments**. Children use k'nex to investigate of **strength** within different shapes -- create a triangle, a rectangle and a square – which is strongest? Why?	Engineers and Architects PowerPoint Brunel PowerPoint K'nex **Vocab** Engineer, architect, strong, stronger, strength, reinforce, reinforcements, bridge, suspension, weak, beam, square, triangle, rectangle
KC4 - Use technical knowledge	**To understand the role of an architect in the design process**	Know what an architect is and their role in the building process Talk about the ways Frank Lloyd Wright tried to protect and use nature in his designs	**Retrieval** – Look at bridges and spot triangles used to strengthen Discussion – what is an **architect**? Look at work of Frank Lloyd Wright and talk about how he tried to **protect** and use **nature** in his **designs**. Is this still important today? Why? Add information about Frank Lloyd Wright to topic book, under the heading 'architects'. Children add photo of Fallingwater ***forward to link to history – significant individuals***	Frank Lloyd Wright PowerPoint Picture of Fallingwater **Vocab** Architect, role, process, design, plan, building, structure, organic, environment

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KC4 - Use technical knowledge	**To understand the role of an engineer in the construction process**	Say what an engineer is Talk about the how Emily Warren Roebling was involved in the engineering process for the Brooklyn Bridge in New York	**Retrieval** – look at images of buildings designed by Frank Lloyd Wright. Partner or group talk – how were they designed and built? What shapes can they see? Do they remind them of any other buildings? What do children like/dislike? Discussion – what is an **engineer**? Look at life of Emily Warren Roebling and talk about her work supporting/taking over as an engineer. What was her role? How did it change over time? Stick in a picture of her/Brooklyn Bridge under 'engineers' heading and annotate with information. Use Emily Warren Roebling fact sheet as an additional read in guided reading (Y2) ***forward to link to history – significant individuals***	Emily Warren Roebling PowerPoint Picture of Emily Warren Roebling/the Brooklyn Bridge **Vocab** Architect, engineer, role, process, design, plan, building, structure, construction
KC1- Design and develop KC4 - Use technical knowledge	**To understand how architects design buildings** **To create own design for a building**	Understand what an eco-friendly building is Say the key features of an eco-friendly building Design an eco-friendly building with some of the key features	**Retrieval** – look at different joining resources. What are they called? How are they best used? Look at examples of modern eco-friendly, 'green', architecture and discuss key features and why the buildings have them (e.g. grass roof, insulation, solar panels) Children design their own eco-friendly building (school, office, house etc) with the features discussed. Children to draw their designs on to squared paper and write about which resources and techniques they will use. Use Eco House Fact Sheet as an additional Y2 read during guided reading sessions *Post on dojo asking parents to donate junk modelling materials for children to use when constructing their eco buildings*	Eco-friendly buildings PowerPoint Squared paper for designs **Vocab** Eco friendly, architecture, insulation, energy, conserve, protect, design, plan, blueprint

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KC1 - Design and develop	**To follow a plan to build a structure**	Follow their plan to begin creating an eco building Apply cutting and joining techniques during construction Talk about techniques used and why they chose them	**Retrieval** – look at eco friendly buildings from last lesson. What features can the children identify In groups, pairs or individually children create their eco-friendly buildings adding the features they had planned. Children could create a wooden frame or could use an existing frame e.g. shoe box as a starting point	Children's plans Junk modelling materials e.g. cardboard boxes, plastic bottles, tin foil, egg cartons Joining materials e.g. tape, glue **Vocab** Design, plan, blueprint, construct, build, apply, cut, join, techniques,
KC1 - Design and develop KC2 - Take risks KC4 - Use technical knowledge	**To follow a plan to build a structure**	Follow their plan to begin creating an eco building Apply cutting and joining techniques during construction Talk about techniques used and why they chose them	**Retrieval** – give children a drawing lines challenge card (appropriate for their ability) to complete In groups, pairs or individually children create their eco-friendly buildings adding the features they had planned. Children could create a wooden frame or could use an existing frame e.g. shoe box as a starting point	Children's plans Junk modelling materials e.g. cardboard boxes, plastic bottles, tin foil, egg cartons Joining materials e.g. tape, glue **Vocab** Design, plan, blueprint, construct, build, apply, cut, join, techniques, evaluate, improve

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KC3 - Evaluate, critique and test	**To evaluate and improve a project**	Say what they liked about their building and what they think they did well Say how they can improve in future Give positive feedback to others in the class	**Retrieval** – On the board, look at photos taken during previous lessons. Model speaking about one in full sentences. With a talk partner, children practise talking about what they did, techniques/materials they used, if it worked or not. Children to evaluate their buildings and compare them to their peers. Children to critique their work and that of one of their peers. Children to use the critique templates for their own work and the smaller critique slips for their peers.	Critique sheets Photos of their models **Vocab** Critique, evaluate, explain, improve