

D&T Sticky Knowledge Tracker – substance concepts

Year Group	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Substantive concepts							
Structures	Musical instruments, houses		3D houses		Boxes/ packaging		Playgrounds
Mechanisms/ mechanical systems		Moving picture books	Moving vehicles	Pop up books/ posters/ display		Moving toys	
Electrical systems					Working torches		Crumble-burglar alarms
Textiles		Meercat Puppets		Pencil cases/ bags		Expedition bags	
Food	Fruit kebabs, sandwiches	Healthy eating plate	Hummus	Greek flatbread	Pizza	Cornish pasties	South American dish
Inspired by other designers throughout history			<i>Moving vehicles: Take inspiration from the invention of cars by Carl Benz in 1886</i>	<i>Pop up books: Take inspiration from Archimedes who developed the principle of the lever and invented the compound pulley.</i>	<i>Pizza: Take inspiration from pizza through history (including the Romans, ancient Greeks, ancient Egyptians and Italy)</i>	<i>Pasties: Take inspiration from the history of the pasty and its invention.</i>	<i>Take inspiration from the history of different playground equipment.</i>
Careers	<i>Chef, builder, product designer,</i>	<i>Chef, farmer, product designer,</i>	<i>Chef, farmer, dietitian, engineer, mechanic, builder,</i>	<i>Chef, farmer, dietitian, nutritionist, materials scientist, product designer</i>	<i>Chef, farmer, dietitian, nutritionist, computer engineer, architect,</i>	<i>Chef, farmer, dietitian, nutritionist, materials scientist, clothing designer, toy designer,</i>	<i>Chef, farmer, dietitian, nutritionist, robotic engineer, software developer, sound engineer, MP, builder,</i>

Structures

	EYFS	KS1	LKS2	UKS2
Construction	Construct for a purpose	Name and use a range of materials to construct. Measure and mark to the nearest cm.	Choose suitable materials, techniques and components to construct with and repair items.	Use a wide range of tools and materials to construct a frame structure.
Strengthening		Select and use techniques to strengthen a product.	Strengthen using a variety of techniques (laminating, corrugating and ribbing).	Strengthen using a variety of techniques (choosing the correct materials to support their frame structure).
Joining	Safely use and explore a variety of tools and techniques. Exploring a variety of joining techniques to understand cause and effect (glue, tape, hole puncher, stapler, treasury tags, split pins)	Demonstrate A range of joining techniques (such as gluing, using hinges, or combining materials to strengthen) Use tools safely to join materials together.	Use nets correctly to join and construct a shape.	Select appropriate joining techniques to secure their structure together.
Repair	Return to and build on their previous learning and refining their ideas		Identify and repair a fault with adult assistance.	Use a range of practical skills to repair items (cutting, glueing, nailing and sanding etc). Independently repair a fault on a frame structure.
Finishing				Cut materials with precision and refine the finish with appropriate tools (sanding and filing). Consider the qualities of materials to create suitable visual and tactile effects.

Mechanisms

	EYFS	KS1	LKS2	UKS2
Systems	<i>Explore systems in toys e.g. pop up books within continuous provision.</i>	Explore existing mechanisms (wheels and axles, slider and levers).	Explore levers and linkages.	Explore pulleys and gears.
Motion	Manipulate items (pushing toys forwards and backwards)	Create a product that moves forwards and backwards.	Create a product that moves up, down or left and right.	Create a product driven by an electrical system.
Joining	Explore a variety of joining techniques to understand cause and effect (glue, tape, hole puncher, stapler, treasury tags, split pins)	Fix wheels securely to an axle using a fixed joint. Use materials to practise gluing and sawing.	Use split pins to support making a pivot joint.	Use a mixture of joints (paper fasteners, elastic bands, glue).

Electrical Systems

	EYFS	KS1	LKS2	UKS2
Circuitry			Create simple closed and parallel circuits.	Create circuits using a range of components (EG. buzzers, motors, LEDs, resistors).
Testing			Diagnose a fault in a battery operated device. Diagnose a fault within a circuit.	Diagnose a fault within a circuit and explain why the circuit cannot operate.
Repair			Repair a fault in a circuit with adult assistance.	Independently repair a fault within an electrical system.

Textiles				
	EYFS	KS1	LKS2	UKS2
Joining	<i>Safely use and explore a variety of tools and techniques. Exploring a variety of joining techniques to understand cause and effect (glue, tape, hole puncher, stapler, treasury tags, split pins) within continuous provision.</i>	Join using a running stitch.	Join with appropriate stitching.	Join textiles with a variety of stitches and select appropriate technique to join. (back stitch for seams and running stitch for decorations).
Embellishment	<i>Explore a variety of effects to express their ideas using materials for decorative purposes (sequins, buttons, junk modelling, loose parts) within continuous provision.</i>	Colour and decorate a product (adding sequins, dying, printing). Shape textiles using templates.	Select and use a variety of embellishment techniques (sew buttons on, adding velcro).	Select and use a variety of embellishment techniques focussing on the quality of materials (EG. such as soft decoration for comfort on a cushion).
Finishing			Understand and use a seam allowance.	Join textiles with a range of finishing techniques (back stitch for seams, running stitch for embellishment).
Aesthetics				Consider the qualities of materials to create suitable visual and tactile effects.

Food				
	EYFS	KS1	LKS2	UKS2
Nutrition	Understand the need for healthy choices.	Understand a healthy and varied diet. Looking at the Eat well plate.	Apply the principles of a healthy and varied diet.	Apply and promote the principles of a healthy and varied diet.
Food Safety	Manage your own basic hygiene and personal needs.	Use utensils and equipment safely and hygienically.	Prepare food hygienically, keeping surfaces, utensils and hands clean.	Store and handle ingredients safely.
Production		Understand where food comes from.	Discuss how a variety of ingredients are reared, caught and grown.	Understand local produce and know how a variety of ingredients are reared, caught and grown.
Seasonality			Understand what seasonality means.	Understand the seasonality of food and the implications this can have.
Skill	Use one-handed tools and equipment.	Measure or weigh using measuring cups or scales.	Follow a recipe. Control a hob or oven for cooking. Measure ingredients to the nearest gram accurately.	Create and refine their own recipe. Measure accurate ratios of ingredients. Demonstrate a range of cooking skills and techniques.