D&T Disciplinary Knowledge

Part 1 of 5

	Product Analysis
EYFS	To be added
Y1	• Analyse the **materials** and **function** of existing products by describing and identifying product features. • Identify and analyse a range of freestanding structures for **function** - including strength and stability. • Explain how a simple existing product works.
Y2	• Analyse the materials, function and **aesthetics** of existing products by describing and identifying product features.
Y3	• Identify and analyse a range of freestanding structures for function - including strength, stability and type of structure (shell or frame). • Analyse the materials, function, aesthetics, **user** and **size** of existing products by describing and identifying product features, comparing products and identifying design criteria.
Y4	• Analyse the materials, function, aesthetics, user, size and **safety** of existing products by describing and identifying product features, comparing products and identifying design criteria.
Y5	• Analyse existing products using the "Responsible Decision-Making Framework" to see if they meet design criteria and identify problems or improvements that could be made. • Analyse the materials, function, aesthetics, user, size, safety and **environmental** of existing products by describing and identifying product features, comparing products and identifying design criteria.
Y6	• Review of the above.

D&T Disciplinary Knowledge

Part 2 of 5

	Design Values & Criteria
EYFS	To be added
Y1	• Generate a set of shared design criteria to solve a given problem. • Use shared design criteria based on the design values of **materials** and **function** when designing.
Y2	• Use shared design criteria based on the design values of materials, function and **aesthetics** when designing.
Y3	• Use design criteria based on the design values of **user** (including needs and wants) when designing. • Use design criteria based on the design values of **user** (including Inclusivity and Accessibility) when designing. • Create design criteria based on the design values of **size** (with exact measurements to meet user needs) when designing.
Y4	• Use design criteria based on the design values of **safety** when designing. • Create own design criteria based on the design values of materials, function, aesthetics, user and size when designing.
Y5	• Use design criteria based on the design values of **environmental** (including **sustainability** and **the 6R's**) when designing. • Create own design criteria based on the design values of materials, function, aesthetics, user, size and safety when designing.
Y6	• Use design criteria based on the design value of environmental (including sustainability, the 6R's and the **product lifecycle**) when designing. • Create own design criteria based on the design values of materials, function, aesthetics, user, size, safety and environmental when designing.

D&T Disciplinary Knowledge

Part 3 of 5

	Designing
EYFS	To be added
Y1	• Use existing products as inspiration to generate ideas. • Take and use photographs as inspiration to generate ideas. • Create a mind map as a group to generate ideas. • Design a solution to solve a given problem that meet shared design criteria. • Develop design ideas by testing a product prototype and suggesting improvements that could be made to its design.
Y2	• Use chooser charts to generate ideas.
Y3	• Define a problem based on analysis of a context. • Use sketching and/or modelling as a copy technique to generate ideas. • Develop design ideas by testing a product prototype and making improvements to its design (iterating). • Design a product or part using CAD that can be made using CAM (e.g. a 3D printer).
Y4	• Design a simple mechanical system and explain how it functions. • Design using part, or all of a design process e.g. make > test > re-design. • Use existing product analysis as a copy technique to generate ideas. • Design a solution that meets design criteria to improve an existing product. • Test designs with real users, watch how people use products, ask users what they like and don't like. Discuss with others how an existing product can be improved.
Y5	• Re-design an everyday product to make it more sustainable. • Design for themselves, for others, and for groups. • Create and use Chooser Charts (morphological analysis) as a transform and combine technique to generate ideas. • Design a simple electrical system and explain how it functions.
Y6	• Use Crazy Eights as a transform and combine technique to generate ideas. • Design using traditional, and digital tools (like CAD and AI).

D&T Disciplinary Knowledge

Part 4 of 5

	Design Communication
EYFS	To be added
Y1	• Draw simple sketches.
Y2	• Draw simple 2D sketches. • Add labels to sketches. • Create a storyboard to communicate the steps to make or assemble a vehicle model.
Y3	• Use CAD to design in 2D and move to 3D. • Sketching - accurately draw designs full size in 2D using cm dot/grid paper • Add dimensions to sketches. • Use the basic functions of Computer Aided Design software for designing. • Use CAD to design a new 3D shape by positioning, resizing, aligning and combining existing shapes. • Use CAD to create a 3D design of a single part or product.
Y4	• Sketching - accurately draw in cm using a ruler. • Add notes to sketches to describe main features. • Draw a cross-sectional diagram to show the position of the internal parts of an assembled product. • Draw an exploded diagram of a product to show how the parts fit together. • Use CAD to create an exploded diagram. • Use CAD to design, simulate and modify a simple electrical circuit. • Use CAD to create and simulate circuits containing switches and different output devices.
Y5	• Use CAD to design, programme and simulate an electrical control circuit containing a microprocessor. • Design simple block diagrams to communicate inputs, process and outputs of a simple monitoring and control (system).
Y6	• Draw simple 3-dimensional sketches. • Use CAD to create a 3D design of a single part or product with specific dimensions. • Write a detailed description of how a more complex electro-mechanical system works.

D&T Disciplinary Knowledge

Part 4 of 5

	Design Communication
EYFS	To be added
Y1	• Draw simple sketches.
Y2	• Draw simple 2D sketches. • Add labels to sketches. • Create a storyboard to communicate the steps to make or assemble a vehicle model.
Y3	• Use CAD to design in 2D and move to 3D. • Sketching - accurately draw designs full size in 2D using cm dot/grid paper • Add dimensions to sketches. • Use the basic functions of Computer Aided Design software for designing. • Use CAD to design a new 3D shape by positioning, resizing, aligning and combining existing shapes. • Use CAD to create a 3D design of a single part or product.
Y4	• Sketching - accurately draw in cm using a ruler. • Add notes to sketches to describe main features. • Draw a cross-sectional diagram to show the position of the internal parts of an assembled product. • Draw an exploded diagram of a product to show how the parts fit together. • Use CAD to create an exploded diagram. • Use CAD to design, simulate and modify a simple electrical circuit. • Use CAD to create and simulate circuits containing switches and different output devices.
Y5	• Use CAD to design, programme and simulate an electrical control circuit containing a microprocessor. • Design simple block diagrams to communicate inputs, process and outputs of a simple monitoring and control (system).
Y6	• Draw simple 3-dimensional sketches. • Use CAD to create a 3D design of a single part or product with specific dimensions. • Write a detailed description of how a more complex electro-mechanical system works.

Food Disciplinary Knowledge

	Making Food Choices
EYFS	
Y1	• Make food choices based on: • Colour. • Quantity of sugar.
Y2	• Make food choices based on: • The above. • Quantity of fat. • Quantity of salt. • Dietary requirements (vegans and vegetarians)
Y3	• Make food choices based on: • The above. • Food allergies
Y4	• Make food choices based on: • The above. • Food miles.
Y5	• Make food choices based on: • The above • Time taken to prepare.
Y6	• Make food choices based on: • The above • Carbon footprint of production and transport. • Occasion. • Cost.