DT - Knowledge and Skills Progression Grid

		KS1 – Y1/2	Lower KS2 – Y3/4	Upper KS2 – Y5/6
Designing	**Understanding context, users and purposes**	Work confidently within a range of contexts such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment. State what products they are designing and making. Say whether their products are for themselves or other users. Describe what their products are for. Say how their products will work. Say how they will make their products suitable for their intended users. Use simple design criteria to help develop their ideas	Work confidently within a range of contexts such as the home, school, leisure, culture, enterprise, industry and the wider environment. Describe the purpose of their products. Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. Gather information about the needs and wants of particular individuals or groups. Develop their own design criteria and use these to inform their ideas.	Work confidently within a range of contexts such as the home, school, leisure, culture, enterprise, industry and the wider environment. Describe the purpose of their products. Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. Carry out research using surveys, questionnaires, interviews and web-based resources. Identify the needs, wants, preferences and values of particular individuals and groups. Develop a simple design specification to guide their thinking.
	Generating, developing, modelling and communicating ideas	Generate ideas by drawing on their own experiences. Use knowledge of existing products to help come up with ideas.	Share and clarify ideas through discussion. Model their ideas through prototypes and pattern pieces.	Share and clarify ideas through discussion. Model their ideas through prototypes and pattern pieces.

		Develop and communicate ideas by talking and drawing. Model ideas by exploring materials, components and construction kits and by making templates and mock ups. Use information and communication technology where appropriate to develop and communicate their ideas.	Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Use computer-aided design to develop and communicate their ideas. Generate realistic ideas focusing on the needs of the user. Make design decisions that take account of the availability of resources.	Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas Use computer-aided design to develop and communicate their ideas. Generate innovative ideas drawing on research. Make design decisions taking account of constraints such as time, resources and cost.
Making	**Planning**	Plan by suggesting what to do next. Select from a range of tools and equipment, explaining their choices. Select from a range of materials and components according to their characteristics.	Select tools and equipment suitable for the task. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Select materials and components suitable for the task. Explain their choice of materials and components according to functional properties and aesthetic qualities. Order the main stages of making.	Select tools and equipment suitable for the task. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Select materials and components suitable for the task. Explain their choice of materials and components according to functional properties and aesthetic qualities. Produce appropriate lists of tools, equipment and materials they may need. Formulate step-by-step plans as a guide to making.
	Practical skills and techniques	Follow procedures for safety and hygiene.	Follow procedures for safety and hygiene.	Follow procedures for safety and hygiene.

		Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components. Measure, mark out, cut and shape materials and components. Assemble, join, and combine materials and components. Use finishing techniques, including those from art and design.	Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Measure, mark out, cut and shape materials and components with some accuracy. Assemble, join, and combine materials and components with some accuracy. Apply a range of finishing techniques, including those from art and design with some accuracy.	Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Accurately, measure, mark out, cut and shape materials and components. Accurately assemble, join, and combine materials and components. Accurately apply a range of finishing techniques, including those from art and design. Use techniques that involve a number of steps. Demonstrate resourcefulness when tackling practical problems.
Evaluating	**Own ideas and products**	Talk about their design ideas and what they are making. Make simple judgements about their products and ideas against design criteria. Suggest how their products could be improved.	Identify the strengths and areas for development in their ideas and products. Consider the views of others, including intended users to improve their work. Refer to their design criteria as they design and make. Use their design criteria to evaluate their completed products.	Identify the strengths and areas for development in their ideas and products. Consider the views of others, including intended users to improve their work. Critically evaluate the quality of the design. manufacture and fitness for purpose of their products as they design and make.

				Evaluate their ideas and products against their original design specification.
	Existing products	Explore: what products are, what products are for, how products work, how products are used, where products might be used, what materials products are made from, what they like and dislike about products	Investigate and analyse: -how well products have been designed - how well products have been made - why materials have been chosen - what methods of construction have been used - how well products work - how well products achieve their purposes - how well products meet user needs and wants - who designed and made the products - where products were designed and made - when products were designed and made - whether products can be recycled or reused	Investigate and analyse: -how well products have been designed - how well products have been made - why materials have been chosen - what methods of construction have been used - how well products work - how well products achieve their purposes - how well products meet user needs and wants - how much products cost to make - how innovative products are - how sustainable the materials in products are - what impact products have beyond their intended purpose
	Key events and individuals	N/A	Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.	Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
Technical knowledge	**Making products work**	Know about the simple working characteristics of materials and components. Know about the movement of simple mechanisms such as levers, sliders, wheels and axles.	Know how to use learning from science to help design and make products that work. Know how to use learning from mathematics to help design and make products that work.	Know how to use learning from science to help design and make products that work. Know how to use learning from mathematics to help design and make products that work.

		Know how freestanding structures can be made stronger, stiffer and more stable. Know that a 3D textiles product can be assembled from two identical fabric shapes. Know the correct technical vocabulary for the projects they are undertaking.	Know that materials have both functional qualities and aesthetic qualities. Know that materials can be combined and mixed to create more useful properties. Know that mechanical and electrical systems have an input, process and output. Know the correct technical vocabulary for the projects they are undertaking. Know how mechanical systems such as levers and linkages or pneumatic systems create movement. Know how simple electrical circuits and components can be used to create functional products. Know how to programme a computer to control their products. Know how to make strong, stiff shell structures. Know that a single fabric shape can be used to make a simple 3D textiles product. Know that food ingredients can be fresh, pre-cooked and processed.	Know that materials have both functional qualities and aesthetic qualities. Know that materials can be combined and mixed to create more useful properties. Know that mechanical and electrical systems have an input, process and output. Know the correct technical vocabulary for the projects they are undertaking. Know how mechanical systems such as cams or pulleys and gears create movement. Know how more complex electrical circuits and components can be used to create functional products. Know how to programme a computer to monitor changes in the environment and control their products. Know how to reinforce and strengthen a 3D framework. Know that a 3D textiles product can be made from a combination of fabric shapes.

				Know that a recipe can be adapted by adding or substituting one or more ingredients.