Key Stage 1

	Year 1	Year 2
Designing	Pupils should generate ideas by: • Drawing on their own experiences and using knowledge of existing products. • State what products they are designing and making (from a given criteria). • Describe what their products are and say how their products will work. Pupils model ideas by: • Exploring materials, components and construction kits. • Use ICT to develop and communicate their ideas.	Pupils should generate ideas by: • Designing purposeful, functional and appealing products for themselves or others. • Saying how they will make their products suitable for their intended user/s. • Communicating their ideas by talking and drawings. • Using simple design criteria to help develop their ideas. Pupils model ideas by: • Making templates and mock ups. • Use ICT to develop and communicate their ideas.
Making	• Use a range of tools and materials to complete practical tasks. • 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 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 Follow procedures for safety and hygiene
Evaluating	Pupils should evaluate existing products by exploring: • What materials products are made from • What they like and dislike about products • How products work They should talk about their design ideas as a class referring to what their product is intended to do and how it will work.	Pupils should evaluate existing products by exploring: • What products are • Who products are for • What products are for • How products are used • Where products might be used

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<table>
<tr><td colspan="2">Technical knowledge</td><td colspan="2">Use the correct technical vocabulary for the projects they are undertaking.

Should know about the simple working characteristics of materials and components.</td></tr>
<tr><td colspan="2">Cooking & Nutrition</td><td>Understand that everyone should eat at least five portions of fruit and vegetables every day

Use techniques such as cutting, peeling and grating.

Understand that all food comes from plants or animals.

Recognise that food has to be farmed, grown elsewhere (e.g. home) or caught</td><td>Know how to name and sort foods into the five groups in The Eat well plate

Know how to prepare simple dishes safely and hygienically, without using a heat source

Understand that food ingredients should be combined according to their sensory characteristics</td></tr>
<tr><td rowspan="3">Practical skills:</td><td>Creating movement</td><td>Learn about the movement of simple mechanisms:
• Sliders (Circus pictures)
(Finishing techniques: Use digital text and graphics to enhance the picture)

Technical vocabulary: mechanism, slider</td><td>Learn about the movement of simple mechanisms:
• Levers/winders - (making castles)
• Wheels and axles

Technical vocabulary: mechanism, pivot, axle,</td></tr>
<tr><td>Structures</td><td>Free standing structures can be made stronger and stiffer.
Using: Construction kits and paper and card

(Animal houses)</td><td>Adding details to structures, walls, buttresses, towers and frameworks.

(Castles)</td></tr>
<tr><td>Textiles</td><td colspan="2">A 3-D textiles product can be assembled from two identical fabric shapes</td></tr>
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Lower Key Stage 2

	Year 3	Year 4
Designing	• Work confidently within a range of contexts, such as the home, school and leisure • Generate (CT modelling, group ideas) design criteria to help develop their ideas. • Generate realistic ideas, focusing on the needs of the individual. • Describe the purpose and design features of their products that will appeal to intended users (at this stage an individual) • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • 'Model' their ideas by using prototypes and pattern pieces.	• Work confidently within a range of contexts, such as the home, school, leisure and culture. • develop their own design criteria and use these to inform their ideas • gather information about the needs and wants of particular individuals and groups • The criteria should state what their product has to do in order to be successful. • Make design decisions based on the availability of resources. • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • 'Model' their ideas by using prototypes and pattern pieces.
Making	Planning: • 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 Practical skills and techniques: • 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	

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<table>
<tr><td>Evaluating</td><td colspan="3">Across KS2 pupils should know about inventors, engineers, chefs and manufacturers who have developed ground-breaking products e.g. Mary Anderson, inventor of the windscreen wiper.

Prior to design pupils should investigate and analyse:
• How well products have been designed, made and work
• What materials and methods of construction have been used
• By who, where and when products were made
• How well products work and achieve their purpose including meeting user needs
• Whether products can be recycled or reused

Pupils should :
• 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</td></tr>
<tr><td>Technical knowledge</td><td colspan="3">Pupils should:
• Use the correct technical vocabulary for the projects they are undertaking
• Know that materials have both functional properties and aesthetic qualities</td></tr>
<tr><td>Cooking & Nutrition</td><td colspan="3">• That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world
• Use techniques such as cutting, peeling and grating, chopping, spreading
• That seasons and climate may affect the food available.</td></tr>
<tr><td rowspan="4">Practical skills:</td><td>Creating movement</td><td>How mechanical systems such as levers and linkages or pneumatic systems create movement:
• Levers and linkages
How mechanical systems such as levers and linkages or pneumatic systems create movement:
• Pneumatic systems</td><td></td></tr>
<tr><td>Structures</td><td></td><td>How to make strong, stiff shell structures.
(shell structures, strong outer shell to provide strength) i.e. packaging</td></tr>
<tr><td>Computer programming</td><td></td><td>• How simple electrical circuits and components can be used to create functional products
• How to program a computer to control their products i.e. use of circuits, bulbs buzzers, LEDs
• Know that mechanical and electrical systems have an input, process and output</td></tr>
<tr><td>Textiles</td><td>How a single fabric shape can be used to make a 3D textiles product</td><td>Use a range of different stitches to improve the visual appeal of a product, and joining materials together by sewing.</td></tr>
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Upper Key Stage 2

	Year 5	Year 6
Designing	• Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • Use research (using surveys, interviews, questionnaires or web based resources) and criteria to develop products which are fit for purpose, functional and aimed at specific groups. • Develop a simple design specification (this is building on from design criteria in LKS2) to guide their thinking, and provide a more detailed statement or bullet pointed list in response to a design brief, challenge or opportunity. • Use computer aided design to develop and communicate their ideas. • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • 'Model' their ideas by using prototypes and pattern pieces.	• Make design decisions, taking into account of constraints such as time, resources and cost. • Use research (using surveys, interviews, questionnaires or web based resources) and criteria to develop products which are fit for purpose, functional and aimed at specific groups. • The design specification may be negotiated and agreed between the pupil, as designer, and his or her client or end user. • 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 • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • 'Model' their ideas by using prototypes and pattern pieces.
Making	Planning: · Produce appropriate lists of tools, equipment and materials that they need · Formulate step-by-step plans as a guide to making Practical skills and techniques: · 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	

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<tr><td>Evaluating</td><td colspan="3">Across KS2 pupils should know about inventors, engineers, chefs and manufacturers who have developed ground-breaking products e.g. Mary Anderson, inventor of the windscreen wiper.

Prior to design pupils should investigate and analyse:
• How well products have been designed and made
• What materials and methods of construction have been used
• How well products work and achieve their purpose including meeting user needs
• How much products cost to make
• How innovative are the products
• How sustainable the materials in products are and the impact products have beyond their intended purpose
Pupils should:
• Identify the strengths and areas for development in their ideas and products
• Consider the views of others, including intended users, to improve their work
• Evaluate their ideas and products against their original design specification
• Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</td></tr>
<tr><td>Technical knowledge</td><td colspan="3">Pupils should:
• Use the correct technical vocabulary for the projects they are undertaking
• know how to use learning from science and maths to help design and make products that work
• know that materials can be combined and mixed to create more useful characteristics</td></tr>
<tr><td>Cooking & Nutrition</td><td colspan="2">• The science behind some changes when cooking e.g. chemical reactions</td><td>• Recipe can be adapted by adding or substituting one or more ingredients
• Use techniques such as cutting, peeling and grating, chopping, spreading, mixing, kneading.</td></tr>
<tr><td rowspan="4">Practical skills:</td><td>Creating movement</td><td colspan="2">How mechanical systems such as cams or pulleys or gears create movement
Cams and pulleys
Gears</td></tr>
<tr><td>Structures</td><td>How to reinforce and strengthen a 3D framework and consider factors that can increase strength and stiffness, also consider properties of materials and shape. (Earthquake structures)</td><td></td></tr>
<tr><td>Computer programming</td><td colspan="2">How more complex electrical circuits and components can be used to create functional products
How to program a computer to monitor changes in the environment and control their products</td></tr>
<tr><td>Textiles</td><td></td><td>That a 3D textiles product can be made from a combination of fabric shapes (Enterprise project)</td></tr>
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