



	Year 1	Year 2	End of KSI expectations	Year 3	Year 4	Year 5	Year 6	End of KS2 expectations
Design	<ul style="list-style-type: none"> <li>Explain what my product is for, and how it will work</li> <li>Use pictures and words to plan, and begin to use models</li> <li>Design a product for myself following design criteria</li> <li>Research similar existing products</li> </ul>	<ul style="list-style-type: none"> <li>Explain what I want to do and describe how I may do it</li> <li>Explain the purpose of product, how it will work and how it will be suitable for the user</li> <li>Describe design using pictures, words, models, diagrams, begin to use ICT</li> <li>Choose best tools and materials, and explain choices</li> <li>Use knowledge of existing products to produce ideas</li> </ul>	<ul style="list-style-type: none"> <li>Design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>Generate, develop, model, and communicate their ideas through talking, drawing, templates, mock-ups, and where appropriate, ICT.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to research others' needs</li> <li>Describe purpose of product</li> <li>Follow a given design criteria</li> <li>Create a plan which shows order, equipment and tools</li> <li>Describe design using an accurately labelled sketch and words</li> <li>Explain how product will work</li> <li>Make a prototype</li> <li>Begin to use ICT to show design</li> </ul>	<ul style="list-style-type: none"> <li>Use research for design ideas</li> <li>Show design meets a range of requirements and is fit for purpose</li> <li>Begin to create own design criteria</li> <li>Produce a plan and explain it to others</li> <li>Include an annotated sketch</li> <li>Make and explain design decisions considering resources</li> <li>Explain how product will work</li> <li>Make a prototype</li> <li>Begin to use ICT to show design</li> </ul>	<ul style="list-style-type: none"> <li>Use internet and questionnaires for research and design ideas</li> <li>Begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose</li> <li>Create own design criteria and have a range of ideas</li> <li>Produce a logical, realistic plan and explain it to others</li> <li>Include an annotated sketch and plan</li> <li>Make design decisions considering time and resources</li> <li>Explain how parts of product will work</li> <li>Model and refine design ideas by making prototypes and using pattern pieces</li> <li>Use ICT to create designs</li> </ul>	<ul style="list-style-type: none"> <li>Draw on market research to inform design</li> <li>Use research of user's individual needs, wants, requirements for design</li> <li>Create own design criteria and specification</li> <li>Use annotated sketches, cross-sectional planning and exploded diagrams</li> <li>Make design decisions considering resources and cost</li> <li>Clearly explain how parts of design will work, and how they are fit for purpose</li> <li>Independently model and refine design ideas by making prototypes and using pattern pieces</li> <li>Use ICT to create designs</li> </ul>	<ul style="list-style-type: none"> <li>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at individuals or groups</li> <li>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design</li> </ul>
Make	<ul style="list-style-type: none"> <li>Explain what I'm making and why</li> <li>Consider what I need to do next</li> <li>Select tools/equipment to cut, shape, join, finish, and explain choices</li> <li>Measure, mark out, cut and shape, with support</li> <li>Choose suitable materials and explain choices</li> <li>Try to use finishing techniques to make product look good</li> <li>Work in a safe and hygienic manner</li> </ul>	<ul style="list-style-type: none"> <li>Explain what I am making and why it fits the purpose</li> <li>Make suggestions as to what I need to do next.</li> <li>Join materials/ components together in different ways</li> <li>Measure, mark out, cut and shape materials and components, with support.</li> <li>Describe which tools and materials I'm using and why</li> <li>Use finishing techniques to make product look good</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use a range of tools and equipment to perform practical tasks for example, cutting, shaping, joining, and finishing.</li> <li>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<ul style="list-style-type: none"> <li>Select suitable tools/equipment, explain choices; begin to use accurately</li> <li>Select appropriate materials, fit for purpose.</li> <li>Work through plan in order</li> <li>Begin to measure, mark out, cut, and shape materials/ components with some accuracy</li> <li>Begin to assemble, join, and combine materials and components with some accuracy and apply some finishing techniques</li> </ul>	<ul style="list-style-type: none"> <li>Select suitable tools and equipment, explain choices in relation to required techniques and use accurately</li> <li>Select appropriate materials, fit for purpose; explain choices</li> <li>Work through plan in order</li> <li>Measure, mark out, cut, and shape materials/ components with some accuracy</li> <li>Assemble, join and combine materials and components with some accuracy and apply some finishing techniques</li> </ul>	<ul style="list-style-type: none"> <li>Use selected tools/equipment with good level of precision</li> <li>Select appropriate materials, fit for purpose; explain choices, considering functionality</li> <li>Create and follow detailed step-by-step plan</li> <li>Explain how product will appeal to an audience</li> <li>Mainly accurately measure, mark out, cut and shape materials/components</li> <li>Mainly accurately assemble, join, and combine materials/components</li> <li>Mainly accurately apply a range of finishing techniques</li> <li>Begin to be resourceful with practical problems</li> </ul>	<ul style="list-style-type: none"> <li>Use selected tools and equipment precisely</li> <li>Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics</li> <li>Create, follow, and adapt detailed step-by-step plans</li> <li>Explain how product will appeal to audience; make changes to improve quality</li> <li>Accurately measure, mark out, cut and shape materials/components</li> <li>Accurately assemble, join and combine materials/components</li> <li>Accurately apply a range of finishing techniques</li> <li>Be resourceful with practical problems</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use a wider range of tools and equipment to perform practical tasks for example, cutting, shaping, joining, and finishing, accurately</li> <li>Select from and use a wider range of materials and components including construction materials, textiles, and ingredients, according to their functional properties and aesthetic qualities</li> </ul>

<p><b>Evaluate</b></p>	<ul style="list-style-type: none"> <li>• Talk about my work, linking it to what I was asked to do</li> <li>• Talk about existing products considering use, materials, how they work, audience, where they might be used</li> <li>• Talk about exiting products and things that other people have made</li> <li>• Begin to talk about what could make product better</li> </ul>	<ul style="list-style-type: none"> <li>• Describe what went well, thinking about design criteria</li> <li>• Talk about existing products considering use, materials, how they work, audience, where they might be used, express personal opinion</li> <li>• Evaluate how good existing products are</li> <li>• Talk about what I would do differently if I were to do it again and why</li> </ul>	<ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing products</li> <li>• Evaluate their ideas and products against design criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Look at design criteria while designing and making and use it to evaluate finished product</li> <li>• Begin to evaluate existing products, considering how well they have been made, materials, whether they work, how they have been made, fit for purpose</li> <li>• Learn about some inventors/designers/engineers/chefs/manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to design criteria while designing and making and use it to evaluate product</li> <li>• Begin to explain how I could improve original design</li> <li>• Evaluate existing products, considering how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> <li>• Know about some inventors/designers/engineers/chefs/manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate ideas and finished product against specification, considering purpose and appearance</li> <li>• Evaluate and discuss existing products, considering how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> <li>• Begin to evaluate how much products cost to make and how innovative they are</li> <li>• Research how sustainable materials are</li> <li>• Talk about some key inventors/designers/engineers/chefs/manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate ideas and finished product against specification, stating if it's fit for purpose</li> <li>• Explain what would improve it and the effect different resources may have had</li> <li>• Do thorough evaluations of existing products considering how well they've been made, materials, whether they work, how they've been made, fit for purpose</li> <li>• Evaluate how much products cost to make and how innovative they are</li> <li>• Consider the impact of products beyond their intended purpose</li> <li>• Discuss some key inventors/designers/engineers/chefs/manufacturers of ground-breaking products</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products.</li> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li> <li>• Understand how key events and individuals in design and technology have helped shape the world</li> </ul>
<p style="text-align: center;"><b>Technical Knowledge (including vocabulary)</b></p>								
<p><b>Structures</b></p>	<ul style="list-style-type: none"> <li>• Understand that axles are used in structures and mechanisms to make parts turn in a circle</li> <li>• Develop awareness of different structures for different purposes</li> </ul> <p><i>Axles, mechanisms, towers and other structures</i></p>	<ul style="list-style-type: none"> <li>• Know that materials and shapes can be manipulated to improve strength and stiffness</li> <li>• Learn how to turn 2D nets into 3D structures</li> </ul> <p><i>Strength, stiffness, stability, material names, 2D and 3D shape properties.</i></p>	<ul style="list-style-type: none"> <li>• Build structures, exploring how they can be made stronger, stiffer, and more stable.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify features of design brief</li> <li>• Use and join appropriate materials</li> </ul> <p><i>Edge, face, length, tabs, joining.</i></p>	<ul style="list-style-type: none"> <li>• Attempt to make product strong</li> <li>• Consider effective and ineffective designs</li> </ul> <p><i>Shell structure, assemble, material, cube, cuboid, prism, graphics.</i></p>	<ul style="list-style-type: none"> <li>• Select materials carefully, considering intended use of product and appearance</li> <li>• Measure accurately enough to ensure precision</li> <li>• Ensure product is strong and fit for purpose</li> </ul> <p><i>Frame structure, stability, shape</i></p>	<ul style="list-style-type: none"> <li>• Select materials carefully, considering the intended use of the product, the aesthetics and functionality</li> <li>• Explain how product meets design criteria</li> <li>• Reinforce and strengthen a 3D frame</li> </ul> <p><i>Frame structure, stability, shape</i></p>	<ul style="list-style-type: none"> <li>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> </ul>
<p><b>Mechanisms</b></p>	<ul style="list-style-type: none"> <li>• Learn that levers and sliders are mechanisms and can make things move</li> </ul> <p><i>Up, down, left, right, vertical, and horizontal to describe movement.</i></p>	<ul style="list-style-type: none"> <li>• Learn that mechanisms are a collection of moving parts that work together in a machine</li> <li>• Explore wheel mechanisms and learn how axles help wheels to move a vehicle</li> </ul> <p><i>Vehicle, wheel, axle, fixed, free moving.</i></p>	<ul style="list-style-type: none"> <li>• Explore and use mechanisms for example, levers, sliders, wheels and axles, in their products.</li> </ul>	<ul style="list-style-type: none"> <li>• Use simple lever and linkages to create movement</li> </ul> <p><i>Mechanism, lever, linkage, input, output</i></p>	<ul style="list-style-type: none"> <li>• Use levers, linkages, and pneumatics to create movement</li> <li>• Learn that all moving things have kinetic energy</li> </ul> <p><i>Mechanism, lever, linkage, input, output, energy</i></p>	<ul style="list-style-type: none"> <li>• Begin to use cams, pulleys, or gears to create movement</li> <li>• Know that mechanisms control movement</li> </ul> <p><i>Switch, circuit, circuit diagram, input, process, output</i></p>	<ul style="list-style-type: none"> <li>• Use cams, pulleys, and gears to create movement and incorporate hydraulics and pneumatics</li> <li>• Explore types of motions and directions of a motion</li> </ul> <p><i>Switch, circuit, circuit diagram, input, process, output</i></p>	<ul style="list-style-type: none"> <li>• Understand and use mechanical systems in their products for example, gears, pulleys, cams, levers, and linkages.</li> </ul>
<p><b>Textiles</b></p>	<ul style="list-style-type: none"> <li>• Learn different ways in which to join fabrics together for example, pinning, stapling, gluing.</li> </ul> <p><i>Measure, cut, join.</i></p>	<ul style="list-style-type: none"> <li>• Learn different ways in which to join fabrics together for example, pinning, stapling, gluing.</li> </ul> <p><i>Measure, cut, join.</i></p>		<ul style="list-style-type: none"> <li>• Join different textiles in different ways</li> </ul> <p><i>Tying knots, sewing, stitch, seam</i></p>	<ul style="list-style-type: none"> <li>• Understand that a simple fabric shape can be used to make a 3D textiles project</li> </ul> <p><i>Strong, weak, shape</i></p>	<ul style="list-style-type: none"> <li>• Discuss how to make product strong and look better with a range of ways to join things</li> </ul> <p><i>Seam, pattern pieces, needles, templates, fastenings</i></p>	<ul style="list-style-type: none"> <li>• Discuss user's wants/needs and aesthetics when choosing textiles</li> <li>• Think about how product might be sold</li> </ul> <p><i>Name of textiles and fastening used</i></p>	

<p><b>Electrical systems</b></p>				<ul style="list-style-type: none"> <li>Use a simple circuit</li> </ul> <p><i>Fault, connection, battery, conductor, electricity</i></p>	<ul style="list-style-type: none"> <li>Use a number of components in a circuit</li> <li>Understand that batteries contain stored electricity and can be used to power products like torches</li> </ul> <p><i>Crocodile clip, switch, conductor, electricity</i></p>	<ul style="list-style-type: none"> <li>Learn the key components used to create a functioning circuit</li> <li>Understand that breaks in a circuit will stop it from working</li> </ul> <p><i>Bulb, control, break</i></p>	<ul style="list-style-type: none"> <li>Use different types of circuits in a product</li> <li>Learn that when electricity enters a magnetic field it can make a motor</li> </ul> <p><i>Electricity, motor, break</i></p>	<ul style="list-style-type: none"> <li>Understand and use electrical systems in their products for example, series circuits</li> </ul>
<p><b>Food and nutrition</b></p>	<ul style="list-style-type: none"> <li>Identify if a food is a fruit or vegetable, learning where are how they grow</li> <li>Describe and group fruits based on taste and texture and make a smoothie</li> </ul> <p><i>Chopping, safety, ingredients, sensory words such as juicy, crunchy, etc.</i></p>	<ul style="list-style-type: none"> <li>Identify the five food groups and know what makes a balanced diet</li> <li>Construct a wrap that meets a design brief</li> </ul> <p><i>Food group names, healthy, hygiene, sensory words, utensils such as a knife, chopping.</i></p>	<ul style="list-style-type: none"> <li>Use the basic principles of a healthy and varied diet to prepare dishes</li> <li>Understand where food comes from</li> </ul>	<ul style="list-style-type: none"> <li>Working with cooking equipment safely and hygienically</li> <li>Begin to understand food comes from the UK and wider world</li> <li>Follow the instructions within a recipe</li> </ul> <p><i>Names of products and equipment, utensils, techniques and ingredients, seasonal.</i></p>	<ul style="list-style-type: none"> <li>Cook safely, following basic hygiene rules</li> <li>Understand the impact of cost and budgeting whilst planning ingredients for biscuits</li> <li>Adapting a recipe</li> </ul> <p><i>Names of products and equipment, utensils, techniques and ingredients, seasonal.</i></p>	<ul style="list-style-type: none"> <li>Prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</li> <li>Understand food can be grown, reared or caught in the UK and the wider world</li> </ul> <p><i>Peeling, chopping, slicing, grating, mixing, spreading.</i></p>	<ul style="list-style-type: none"> <li>Prepare and cook some savoury dishes safely and hygienically including where appropriate, use of heat source</li> <li>Understand food can be grown, reared or caught in the UK and the wider world</li> </ul> <p><i>Peeling, chopping, slicing, grating, mixing, spreading.</i></p>	<ul style="list-style-type: none"> <li>Understand and apply the principles of a healthy and varied diet</li> <li>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul>