

Key Stage 2	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:			
	Year A	Year B	Year C	Year D
Design	Multi-materials and workshop safety - Timbers and Polymers	Compliant materials - Textiles	Iterative design Strategies – Biomimicry and Systems and Control - Circuits, programming, levers and linkages and mechanisms	Food Safety & Nutrition – Eat Well Guide
Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups	Students design a product on a theme. They product design ideas based on imagery they find. They consider a target market for their product and what they might like.		Students use research images from nature to inspire design ideas. They design products that are functional and model them. They analyse products to determine whether they are fit for purpose and why - their own and existing designs.	
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	Students sketch ideas and consider how construction might take place for a product. Students use CAD to draw features and additional features to go onto their project.	Students product simple sketches of ideas for a concept and test techniques before making their product.	Students learn about the design approaches designers take - research, design, develop, evaluate, re-design - iterative design approach. They sketch products using a range of techniques, including 2D and 3D sketching. They produce presentation drawings and annotated sketches of concepts. They use sketch modelling to prototype an idea.	
Make	Designing & Making, Workshop Safe Practice – Timber	Compliant Materials & their properties - Textiles	Iterative design Strategies – Biomimicry and Systems and Control - Circuits, programming, levers and linkages and mechanisms	Food Safety & Nutrition – Eat Well Guide
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	Students learn about safe practice in the workshop. They learn about PPE and safe use of tools. They use CAD to design laser cut features and details to go on their project.	Students learn to join compliant materials through hand stitching and cutting shapes. They learn to use key textiles equipment and apply accuracy through their project.		Students use kitchen equipment and tools and develop confidence working in a high technical skill environment.
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	Students learn about the sources and recycling of timber. They will learn to use and work with timber in a workshop setting, such as joining, gluing and sanding. They will work with acrylic using CAD.	Students learn keywords linked with compliant materials and properties of different fabrics such as felt and cotton.	Students use sketch modelling with cardboard to model a concept of their choice, testing out function, size and scale.	Students work with ingredients to product a range of outcomes.
Evaluate	Multi-materials and workshop safety	Compliant Materials & their properties - Textiles	Iterative design Strategies – Biomimicry and Systems and Control - Circuits, programming, levers and linkages and mechanisms	Food Safety & Nutrition – Eat Well Guide
Investigate and analyse a range of existing products		Students evaluate their own products in relation to a function. Students evaluate existing products to determine what works/doesn't work.	Students evaluate their own products in relation to a function. Students evaluate existing products to determine what works/doesn't work. They make changes to circuits and systems to improve function.	Students undertake taste tests with products and analyse packaging of existing products - e.g. ingredient lists, allergy information.
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	Students make ongoing changes and developments to projects as they model. They evaluate their final products.	Students make ongoing changes and developments to projects as they model. They evaluate their final products.	Students make ongoing changes and developments to projects as they model. They evaluate their final products. They undertake ongoing evaluation to determine what is working with circuits and systems.	Students evaluate their products in relation to taste, appearance and texture.
Understand how key events and individuals in design and technology have helped shape the world		References to famous British fashion designers: Burberry of London, Molly Goddard, Sadie Williams, Vivienne Westwood, Shrimps, Temperley, Pringle of Scotland, House of Holland, Julien McDonald, Alice Archer & Paul Smith - Nottingham	Students will learn about key electronic and mechanical developments linked to inventions.	References to famous chefs and catering figures such as Heston Blumenthal, Gordon Ramsey, Marco Pierre White & Jason Atherton
Technical knowledge	Multi-materials and workshop safety	Compliant Materials & their properties - Textiles	Iterative design Strategies – Biomimicry and Systems and Control - Circuits, programming, levers and linkages and mechanisms	Food Safety & Nutrition – Eat Well Guide
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures			Students build structures to test and learn about techniques for strengthening and stiffening.	
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	Year 5&6 only - using cams and mechanisms in a product		Students make models of levers and linkages, learn about cams, pulleys and gears and the use of mechanical systems.	
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]			Students plan and make circuits using components to test their use and function.	
Apply their understanding of computing to program, monitor and control their products			Students cover this in ICT - Code.org and Scratch in Spring/Summer term.	