St. Luke's C of E (Aided) Primary School

Design and Technology Information 2022-2023

SEPTEMBER 2022

Curriculum Overview

Early Years Foundation Stage

These are the Early Learning Goals that link most closely to the Art and Design National Curriculum:

An expected child at the end of EYFS:

Expressive Arts and Design (Exploring and Using Media and Materials)

Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Expressive Arts and Design (Being Imaginative)

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Curriculum Expectations

Key Stage One curriculum expectations:

Pupils should be taught:

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, such as the home and school, gardens and playgrounds, the local community, industry and the wider environment.

Design

- Design purposeful, functional, appealing products for themselves and other users based on design criteria.

- Generate develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Create

- Select from and use a range of tools and equipment to perform practical tasks such as cutting, shaping, joining and finishing.

• Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

Evaluate

• Explore and evaluate a range of existing products.

• Evaluate their ideas and products against design criteria.

Technical knowledge

• Build structures, exploring how they can be made stronger, stiffer and more stable.

• Explore and use mechanisms, such as levers, sliders, wheels and axles, in their products.

• Use the basic principles of a healthy and varied diet to prepare dishes.

• Understand where food comes from.

Key Stage Two curriculum expectations –

Pupils should be taught:

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, such as the home, school, leisure, culture, enterprise, industry and the wider environment.

Design

• 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.

• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Create

• Select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately.

• 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.

Evaluate

• Investigate and analyse a range of existing products.

• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

• Understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

• Understand and use mechanical systems in their products, such as gears, pulleys, cams, levers and linkages.

• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors.
• apply their understanding of computing to program, monitor and control their products.

• Understand and apply the principles of a healthy and varied diet.

• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.

• Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

Intent

At St. Luke's C of E Primary School we intend to build a Design Technology curriculum which is inspiring, rigorous, and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum. It is our aim to create strong cross curricular links with other subjects, such as Mathematics, Science, Computing, and Art. We want Design and Technology to prepare our children, to give them the opportunities, responsibilities, and experiences they need to be successful in later life.

Implementation

Design and Technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high-quality Design and Technology curriculum.
This is implemented through:

- A well thought out, whole school, yearly overview of the DT curriculum which allows for progression across year groups in all areas of DT (textiles, mechanisms, structures, food and electrical systems)
- Well planned and resourced projects providing children with a hands-on and enriching experience.
- A range of skills being taught ensuring that children are aware of health and safety issues related to the tasks undertaken
- Teachers being given ownership and flexibility to plan for Design and Technology; often teaching DT as a block of lessons to allow the time needed for the children to be critical, inventive and reflective on their work.
- Each project from Year 1 to Year 6 addressing the principles of designing, making, and evaluating and incorporating relevant technical knowledge and understanding in relevant contexts.
- Pupils being introduced to specific designers, chefs, nutritionists, etc. creating an appreciation of human creativity and achievement and increase the cultural capital from which they can draw in the future.

As a school, we promote Design and Technology in the wider school through DT lessons in our school Eco-garden. Where the children learn about where our food comes from by growing their own, and the importance of a balanced, healthy and varied diet and how to prepare this. We have plot/bedding area at school and each year group is in charge of their own patch, to grow and harvest food. We also

Early Years Foundation Stage

During the EYFS pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunities to learn to:

- Use different media and materials to express their own ideas.
- Use what they have learnt about media and materials in original ways, thinking about form, function and purpose.
- Make plans and construct with a purpose in mind using a variety of resources.
- Develop skills to use simple tools and techniques appropriately, effectively and safely.
- Select appropriate resources for a product and adapt their work where necessary.
- Cook and prepare food adhering to good health and hygiene routines.

Impact

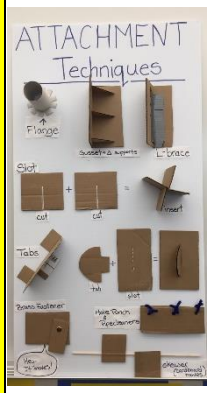
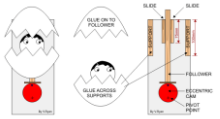
Children will have clear enjoyment and confidence in Design and Technology that they will then apply to other areas of the curriculum. Through carefully planned and implemented learning activities the pupils develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. They gain a firm foundation of knowledge and skills to see the equipped to take on further learning in secondary school. Pupil's skills and knowledge are assessed on depth of learning by the class teacher, throughout lessons and a summative assessment is completed termly. This informs the Design and Technology coordinator of any further areas for curriculum development, pupil support and/or training requirements for staff. EYFS pupils' progress and attainment tells us whether each individual child is below expected, at expected or above expected attainment for their age.

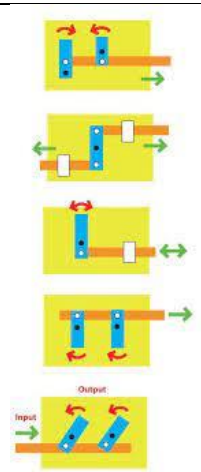
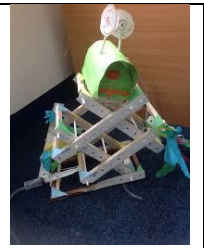
	Foundation 2	Year 1	Year 2	End of key stage 1 expectations	Year 3	Year 4	Year 5	Year 6	End of key stage 2 expectations
D E S I G N 	*To know how to select appropriate resources *To know how to use gestures, talking and arrangements of materials and components to show design * To know how to use contexts set by the teacher and myself *To know how to use language of designing and making (join, build, shape, longer, shorter, heavier etc.)	* To know how to create my own ideas * To know how to explain what I want to do * To know how to explain what my product is for, and how it will work * To know how to use pictures and words to plan, begin to use models *To know how to design a product for myself following design criteria *To know how to research similar existing products	* To know how to think of my own ideas and plan what to do next * To know how to explain what I want to do and describe how I may do it * To know how to explain purpose of product, how it will work and how it will be suitable for the user * To know how to describe my designs using pictures, words, models, diagrams, begin to use ICT in my designs. * To know how to design products for myself and others following design criteria * To know the best tools to use and materials, and explain choices * To know how to use knowledge of existing products to produce ideas	*Design purposeful, functional, appealing products for themselves and other users based on design criteria *Generate, develop, model and communicate their ideas through talking, drawing, templates, mockups and, where appropriate, information and communication technology	*To know how to research others' needs when designing * To know how to show that a design meets a range of requirements * To know how to describe purpose of product *To know how to follow a given design criteria *To have at least one idea about how to create product * To know how to create a plan which shows order, equipment and tools *To know how to describe a design using an accurately labelled sketch and words *To know how to make design decisions *To know how to explain how a product will work * To know how to make a prototype * To know how to use computers to show my designs	* To know how to use research for design ideas * To know how make my design meet a range of requirements and is fit for purpose *To know to begin to create own design criteria *To know how to have at least one idea about how to create product and suggest improvements for design * To know how to produce a plan and explain it to others *To know how to say how realistic the plan is. *To know how to include an annotated sketch *To know how to make and explain design decisions considering availability of resources *To know how to explain how a product will work * To know how to make a prototype	*To know how to use internet and questionnaires for research and design ideas *To know how to take a user's view into account when designing * To begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose *To know how to create own design criteria * To have a range of ideas *To know how to produce a logical, realistic plan and explain it to others. *To know and use cross-sectional planning and annotated sketches *To know how to make design decisions considering time and resources. *To know how to clearly explain how parts of product will work. *To model and refine design ideas by making prototypes	* To know how to draw on market research to inform design * To know and use research of user's individual needs, wants, requirements for design *To know how to identify features of design that will appeal to the intended user *To know how to create own design criteria and specification * To be able to come up with innovative design ideas *To know how to follow and refine a logical plan. *To be able to use annotated sketches, cross-sectional planning and complex diagrams *To know how to make design decisions, considering, resources and cost *To know how to clearly explain	*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 *Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided designs

						*To know how to use computers to show design.	and using pattern pieces. *To know how to use computer-aided designs	how parts of design will work, and how they are fit for purpose *To independently model and refine design ideas by making prototypes and using pattern pieces *To know how to use computer-aided designs	
C R E A T E 	*To know how to construct with a purpose, using a variety of resources *To be able to use simple tools and techniques *To know how to build / construct with a wide range of objects *To be able to select tools & techniques to shape, assemble and join *To know how to replicate structures with materials / components *Discuss how to make an activity safe and hygienic *Record experiences by drawing,	*To know how to explain what I'm making and why *To consider what I need to do next *To know how to select tools/ equipment to cut, shape, join, finish and explain choices *To know how to measure, mark out, cut and shape, with support *To know how to choose suitable materials and explain choices *To know how to use finishing techniques to make a product look good *To know how to work in a safe and hygienic manner.	*To know how to explain what I am making and why it fits the purpose *To know how to make suggestions as to what I need to do next. *To be able to join materials/component together in different ways *To know how to measure, mark out, cut and shape materials and components, with support. *To know how to describe which tools I'm using and why *To be able to choose suitable materials and explain choices depending on characteristics.	*Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing *Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	*To know how to select suitable tools/equipment, explain choices; begin to use them accurately * To know how to select appropriate materials, fit for purpose. *To be able to work through a plan in order *To consider how a good product will be *To begin to measure, mark out, cut and shape materials/components with some accuracy * To begin to assemble, join and combine materials and components with some accuracy	*To know how to select suitable tools and equipment, explain choices in relation to required techniques and use accurately *To know how to select appropriate materials, fit for purpose; explain choices *To be able to work through a plan in order. *To know and realise if a product is going to be good quality *To know how to measure, mark out, cut and shape materials/components with some accuracy *To know how to assemble, join and	* To know how to use selected tools/equipment with good level of precision *To know how to produce suitable lists of tools, equipment/materials needed *To be able to select appropriate materials, fit for purpose; explain choices, considering functionality *To know how to create and follow detailed step by-step plan *Explain how product will appeal to an audience *To know how to accurately measure, mark out, cut and shape	* To be able to use selected tools and equipment precisely *To know and produce suitable lists of tools, equipment, materials needed, considering constraints *To know and select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics *To know how to create, follow, and adapt detailed step-by-step plans	*Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishinG accurately *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

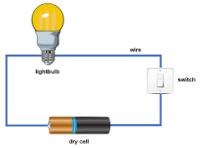
	writing, voice recording *Understand different media can be combined for a purpose		*To know some finishing techniques to make product look good *To know how to work safely and hygienically		* To begin to apply a range of finishing techniques with some accuracy.	combine materials and components with some accuracy *To know how to apply a range of finishing techniques with some accuracy.	materials/components *Mainly accurately assemble, join and combine materials/components *Mainly accurately apply a range of finishing techniques *Use techniques that involve a small number of steps *Begin to be resourceful with practical problems	*Explain how product will appeal to audience; make changes to improve quality *Accurately measure, mark out, cut and shape materials/components *To know how to accurately assemble, join and combine materials/components * To know how to accurately apply a range of finishing techniques * use techniques that involve a number of steps * be resourceful with practical problems	
E V A L U A T E 	*To know how to adapt work if necessary *To know how to dismantle, examine, talk about existing objects/structures *To know how to consider and manage some risks *To know how to practise some	*To know how to talk about my work, linking it to what I was asked to do * To know how to talk about existing products considering: use, materials, how they work, audience, where they might be used *To know how to talk about existing products, and say what is and isn't good	* To know how to describe what went well, thinking about design criteria * To be able to talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion *To know how evaluate how good	*Explore and evaluate a range of existing products *Evaluate their ideas and products against design criteria	* To know how to look at design criteria while designing and making *To know how to use design criteria to evaluate finished product * To be able to say what I would change to make a design better *To begin to evaluate existing	*To know how to refer to design criteria while designing and making *To know how to use criteria to evaluate product * To begin to explain how I could improve original design *To know how to evaluate existing products,	*To know how to evaluate quality of design while designing and making *To evaluate ideas and finished product against specification, considering purpose and appearance. *To know how to test and evaluate final product * To know how to evaluate and discuss existing products,	*To know how to evaluate the quality of a design while designing and making; is it fit for purpose? * keep checking design is best it can be. *To know how to evaluate ideas and finished product against specification,	*Investigate and analyse a range of existing products. *Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. *Understand how key events and individuals in design and technology have helped shape the world

	appropriate safety measures independently *To be able to talk about how things work *To look at similarities and differences between existing objects / materials / tools *To show an interest in technological toys *To know how to describe textures	* To know how to talk about things that other people have made *begin to talk about what could make product better	existing products are *To know and explain about what I would do differently if I were to do it again and why		products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose *To know and begin to understand by whom, when and where products were designed * To know and learn about some inventors/ designers/ engineers/chefs/ manufacturers of ground-breaking products	considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * To be able to discuss by whom, when and where products were designed * research whether products can be recycled or reused * know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products	considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * To begin to evaluate how much products cost to make and how innovative they are *research how sustainable materials are *talk about some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products	stating if it's fit for purpose *Test and evaluate final product; explain what would improve it and the effect different resources may have had thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose *To know how to evaluate how much products cost to make and how innovative they are *To be able to research and discuss how sustainable materials are *consider the impact of products beyond their intended purpose *To know and discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground-	

								breaking products	
Technical Knowledge - Materials and Structures		*To begin to measure and join materials, with some support *To know how to describe differences in materials *To know and suggest ways to make materials/products stronger	*To know how to measure materials *To know how to describe some different characteristics of materials *To know how to join materials in different ways *To know how to use joining, rolling or folding to make it stronger *use own ideas to try to make product stronger	*Build structures, exploring how they can be made stronger, stiffer and more stable 	*To know how to use appropriate materials *To know how to work accurately to make cuts and holes * To know how to join materials *To begin to make strong structures	*To know how to measure carefully to avoid mistakes *To know how to make products strong *To continue working on a product even if original didn't work *To know how to make a strong, stiff structure	*To know how to select materials carefully, considering intended use of product and appearance *To know how to explain how a product meets design criteria *To know how to measure accurately enough to ensure precision *To ensure product is strong and fit for purpose *To know how to reinforce and strengthen a 3D frame	*To know to select materials carefully, considering intended use of the product, the aesthetics and functionality. *To know how to explain how a product meets design criteria * To know how to reinforce and strengthen a 3D frame	*Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
Technical Knowledge - Mechanisms		*To begin to design, create and use levers or slides	*To use levers or slides in my designs *To know and understand how to use wheels and axles on my designs	*Explore and use mechanisms (e.g, levers, sliders, wheels and axles), in their products.	To know and select appropriate tools / techniques *To know how to alter product after checking, to make it better *To know how to use simple lever and linkages to create movement in my designs	*To know how to select most appropriate tools / techniques *To explain alterations to product after checking it *To grow in confidence about trying new / different ideas. *To know how to use levers and linkages to create movement *To know how to use pneumatics to create movement	*To know how to refine products after testing *To grow in confidence about trying new / different ideas *To know how to use cams, pulleys or gears to create movement 	*To refine products after testing, considering aesthetics, functionality and purpose *To know to incorporate hydraulics and pneumatics To be confident to try new / different ideas *To know how to use cams, pulleys and gears to create movement	*Understand and use mechanical systems in their products (e.g, gears, pulleys, cams, levers and linkages) 

									
Technical Knowledge - Textiles		*To know how to measure, cut and join textiles to make a product, with some support *To be able to choose suitable textiles for a particular purpose	*To know how to measure textiles *join textiles together to make a product, and explain how I did it *To know how to carefully cut textiles to produce accurate pieces *To know how to explain choices of textile *To know and understand that a 3D textile structure can be made from two identical fabric shapes.		*To know how to join different textiles in different ways *To know how to choose textiles considering appearance and functionality To know and begin to understand that a simple fabric shape can be used to make a 3D textiles project	*To know and think about the user when choosing textiles *To know and think about how to make product strong * To begin to devise a template *To explain how to join things in a different way *To understand that a simple fabric shape can be used to make a 3D textiles project	*To be able to think about the user and aesthetics when choosing textiles *To know how to use own template *To think about how to make product strong and look better *To be able to think of a range of ways to join materials together *To begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.	*To think about user's wants/needs and aesthetics when choosing textiles *To know how to make a product attractive and strong *To know how to make a prototype *To use a range of joining techniques *To think about how a product might be sold *To think carefully about what would improve product *To understand that a single 3D textiles project can be made from a combination of fabric shapes.	

Technical Knowledge - Food and Nutrition 	*To know about food preparation, tools, techniques and processes *To know how to practise stirring, mixing, pouring, blending *To know how to discuss about making an activity safe and hygienic *To know how to use my senses when cooking. *To understand the need for variety in food *To understand that eating well contributes to good health	*To know how to describe textures *To know the importance of washing hands & clean surfaces *To be able to think of interesting ways to decorate food *To know where some foods come from, (i.e. plant or animal) *To know how to describe differences between some food groups (i.e. sweet, vegetable etc.) *To be able to discuss how fruit and vegetables are healthy *To know how to cut, peel and grate safely, with support, when cooking.	*To know to how to explain hygiene and keep a hygienic kitchen/work space *To know how to describe properties of ingredients and importance of varied diet *To know where food comes from (animal, underground etc.) *To know how to describe how food is farmed, home-grown, caught *To know how to draw an eat well plate; explain there are groups of food *To know how to describe what "five a day" means *To know how to cut, peel and grate with increasing confidence.   	*Use the basic principles of a healthy and varied diet to prepare dishes *Understand where food comes from. 	*To know how to carefully select ingredients *To know how to use equipment safely *To know how to make product look attractive *To think about how to grow plants and how to use them in cooking *To begin to understand that food comes from the UK and the wider world *To know how to describe a healthy diet= variety/balance of food/drinks *To know how to explain how food and drink are needed for active/healthy bodies. *To know how to prepare and cook some dishes safely and hygienically *To grow in confidence when using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	*To know how to be safe/hygienic and to be able to explain this to others *To think about presenting product in interesting/ attractive ways *To know and understand ingredients can be fresh, pre-cooked or processed *To know and understand about food being grown, reared or caught in the UK or wider world *To know how to describe the eat well plate and how a healthy diet=variety / balance of food and drinks *To know and explain the importance of food and drink for active, healthy bodies *To know how to prepare and cook some dishes safely and hygienically *To know how to use some of the following techniques: peeling, chopping, slicing, grating, mixing,	*To know and explain how to be safe / hygienic and follow own guidelines *To know how to present a product well - interesting, attractive and fit for purpose *To know and understand seasonality of foods *To understand food can be grown, reared or caught in the UK and the wider world *To know that recipes can be adapted to change appearance, taste, texture, aroma *To know how to explain how there are different substances in food / drink needed for health *To know how to prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source * To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	*To know and understand how a recipe can be adapted by adding / substituting ingredients *To know and explain seasonality of foods *To know and learn about food processing methods *To know how to name some types of food that are grown, reared or caught in the UK or wider world *To know how to adapt recipes to change appearance, taste, texture or aroma. *To know how to describe some of the different substances in food and drink, and how they can affect health *To know how to prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of a heat source.	*Understand and apply the principles of a healthy and varied diet *Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques *Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 

						spreading, kneading and baking		*To know how to use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	
Technical Knowledge – Electrical systems					*To know how to use simple circuits in product *To know how to how to program a computer to control product.	*To know how to use number of components in circuit *To know how to program a computer to control product.	*To know how to incorporate switches into product *To know how to confidently use a number of components in circuit *To know how to be able to program a computer to monitor changes in environment and control product	*To know how to use different types of circuit in product * To be able to think of ways in which adding a circuit would improve product * To know how to program a computer to monitor changes in environment and control product	*To understand and use electrical systems in their products (e.g. example, series circuits) 

DESIGN TECHNOLOGY: VOCABULARY MAP

	Design and Develop	Making	Product	Evaluation
EYFS	• Plan • Draw • Ideas • Design	• Make • Build • Combine • Join • Shape • Tools	• Complete • Product • Final	• Change • Like • Dislike • Next time • Better • Worse • Different • Instead

DESIGN TECHNOLOGY: VOCABULARY MAP

	Design	Technical Knowledge & Making	Cooking and Nutrition	Evaluate
KS1	• Plan • Prepare • Design • Materials • Ideas • Use • Model • Development • Market Research • Survey • Template	• Fast • Slow • Faster • Slower • Up • Down • Turn • Wind up • Design • Draw • Sketch • Tools • Fix • Glue • Attach • Features • Brick • Wood • Stone • Cloth • Metal • Foam • Felt • Paper • Tissue • Newspaper • Cardboard • String • Wool • Clay • Scissors • Glue • Tape • Cut • Stick • Decorate	• Healthy • Unhealthy • Source • Fruit • Vegetables • Clean • Safe • Dirty • Unsafe • Amount • Ingredients • Recipe • Weight • Nutrients • Vegetarian • Dietary requirements	• Change • Improve • Prefer • Useful • Unsuccessful • Future • Progress • modify • Alter • Adapt • Original • Finished article • Evaluate • Graphics
KS2	• Plan • Organise • Prototype • Initial ideas • Criteria • Diagrams • Labels • Annotate • Brief • Product • Consumer • Customer • Target audience • Purpose • Application • Constraints • Client	• Materials • Mould • Liquid • Solid • Form • Shape • Adhesive • Lattice • Mass-produce • Hand-made • Packaging • Presentation • Machine made • Dimensions • Durable	• Healthy • Unhealthy • Balanced • Vitamins • Disease • Nutrition • Healthy eating • Hygiene • Diet • Cross contamination • Grams • Storage • Presentation • Taste • Texture • Flavour • Disinfect • Bacteria	• Assess • Edit • Improve • Alter • Outcome • Develop • Test • Analyse • Effective • Fit for purpose • Design criteria • Alternatives • Models • Quality • Function • Functionality