



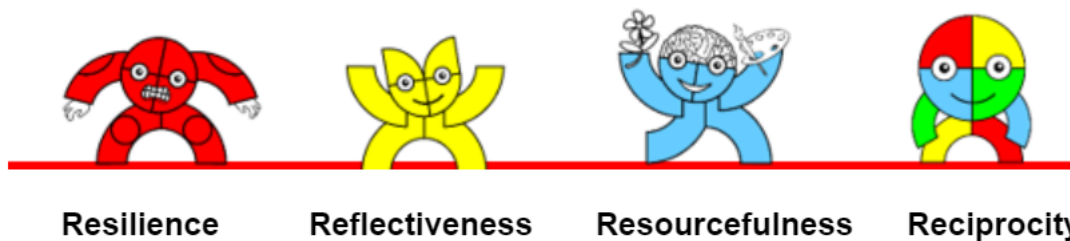
Allenton Community Primary School

Progression Map

Design and Technology

Vision and Intent

Through Design Technology, children will be inspired and prepared for aspirational STEM-based careers and skills to utilise in their adult lives. They will develop the skills of a technologist, including those which allow them to design, make and evaluate a variety of products for real-life purposes.



Design and Technology Yearly Overview

	Autumn		Spring	Summer	
EYFS					
Year 1	Sliders and levers		Textiles	Food	
Year 2	Wheels and axles		Food	Structures	
Year 3			Mechanical systems	Food	Textiles
Year 4	Electronic systems		Shell Structures	Food	
Year 5	Pulleys and gears		Food	Textiles	
Year 6	Food	Structures	Electronic systems		

Links to Learning in EYFS

In the EYFS Development Matters, Design and Technology falls under the "Expressive Arts and Design" area. The specific elements related to Design and Technology in the Early Years Foundation Stage includes:

Exploring and Using Media and Materials:

Encouraging children to explore different materials and tools.

Providing opportunities for them to use various media for creative expression.

Being Imaginative:

Fostering creativity and imaginative thinking.

Encouraging children to use their imagination in designing and making things.

Creating with Materials:

Allowing children to experiment with different materials to create and construct.

Providing opportunities for hands-on, practical activities to develop fine and gross motor skills.

Being Creative:

Supporting children in expressing themselves through various creative activities.

Encouraging them to engage in imaginative play and design.

These elements aim to foster children's creativity, curiosity, and problem-solving skills through hands-on experiences with materials, tools, and imaginative activities. It's important to create an environment that stimulates exploration and provides opportunities for children to design, make, and evaluate their creations.

Year 1	Focus: Sliders and levers	Outcome: Create a class information book with moving parts using sliders and levers about Allenton. This can be used by next year's cohort as demonstrative tool as well as being in their book corner.
Skills		
Designing	Making	Evaluating
- Design appealing products for a particular user based on simple design criteria. - Generate initial ideas and design criteria through own experiences. - Develop and communicate these ideas through talk and drawings and mock ups where relevant.	- Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and - Chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card. - Select from a range of ingredients and materials according to their characteristics to create a chosen product.	- Taste, explore and evaluate a range of products to determine the intended user's preferences for the product - Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.
Knowledge		
- Know what a slider and how it works - Know what a lever is and how it works - Know that different mechanisms produce different types of movement		
Vocabulary		
slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards, design, make, evaluate, user, purpose, ideas, design criteria, product, function		

Year 1	Focus: Textiles	Outcome: Create stone age finger puppet. The finger puppet could be based on animals around at this time, or stone age man. This can be used for the children to role play with and tell stories with their friends.
Skills		
Designing	Making	Evaluating
- Design appealing products for a particular user based on simple design criteria. - Generate initial ideas and design criteria through own experiences. - Develop and communicate these ideas through talk and drawings and mock ups where relevant.	- Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and - Chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card. - Select from a range of ingredients and materials according to their characteristics to create a chosen product.	- Taste, explore and evaluate a range of products to determine the intended user's preferences for the product - Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.
Knowledge		
- Know how simple 3D textile products are made using a template to create two identical shapes - Know how to join fabrics using different techniques: running stitch, gluing and stapling - Know that there are different finishing techniques and how to achieve these		
Vocabulary		
names of existing products, joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function		

Year 1	Focus: Food	Outcome: create a fruit salad based on British Summer ingredients. Children will understand where these products are grown, and this fruit salad could be taken home, or parents invited in to make it with children.
Skills		
Designing	Making	Evaluating
- Design appealing products for a particular user based on simple design criteria. - Generate initial ideas and design criteria through own experiences. - Develop and communicate these ideas through talk and drawings and mock ups where relevant.	- Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and - Chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card. - Select from a range of ingredients and materials according to their characteristics to create a chosen product.	- Taste, explore and evaluate a range of products to determine the intended user's preferences for the product - Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.
Knowledge		
- Know where a range of fruit and vegetables come from, e.g. farmed or grown at home - Know that fruit and vegetables are part of the 'eat well plate'		
Vocabulary		
fruit and vegetable names, names of equipment and utensils, sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard, flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria		

Year 2	Focus: Wheels and axles	Outcome: Create a suitcase on wheels big enough for a teddy bear to travel around the world's continents and oceans. It will have to hold the toys clothes and be able to move across the floor on wheels.
Skills		
Designing	Making	Evaluating
- Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Develop, model and communicate their ideas through talking, mock-ups and drawings.	- Plan by suggesting what to do next. - Select and use tools, - Equipment, skills and techniques to perform practical tasks, explaining their choices. - Select new and materials, components, reclaimed materials and construction kits to build and create their products. - Use simple finishing techniques suitable for the products they are creating.	- Explore a range of existing products related to their design criteria. - Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.
Knowledge		
- Know how wheels, axles and axle holders work - Know the difference between fixed and freely moving axles		
Vocabulary		
vehicle, wheel, axle, axle holder, chassis, body, cab, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools, equipment and materials used, design, make, evaluate, purpose, user, criteria, functional		

Year 2	Focus: Food	Outcome: Children in year 2 will create a new flavour of fruit jelly using only healthy ingredients. Children can use fresh ingredients and fruit juice to create a new jelly to be sold in a restaurant at the sea-side.
Skills		
Designing	Making	Evaluating
- Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Develop, model and communicate their ideas through talking, mock-ups and drawings.	- Plan by suggesting what to do next. - Select and use tools, - Equipment, skills and techniques to perform practical tasks, explaining their choices. - Select new and materials, components, reclaimed materials and construction kits to build and create their products. - Use simple finishing techniques suitable for the products they are creating.	- Explore a range of existing products related to their design criteria. - Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.
Knowledge		
- Know and use technical and sensory vocabulary relevant to the project. - Understand and use basic principles of a healthy and varied diet to prepare dishes		
Vocabulary		
fruit and vegetable names, names of equipment and utensils, sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard, flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria		

Year 2	Focus: Structures	Outcome: create a podium where a famous significant person would do a speech. It will have to hold a Lego figurine for 1 minute without falling or breaking. It should also be higher than 20cm off a table for people to see the person giving their speech.
Skills		
Designing	Making	Evaluating
- Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Develop, model and communicate their ideas through talking, mock-ups and drawings.	- Plan by suggesting what to do next. - Select and use tools, - Equipment, skills and techniques to perform practical tasks, explaining their choices. - Select new and materials, components, reclaimed materials and construction kits to build and create their products. - Use simple finishing techniques suitable for the products they are creating.	- Explore a range of existing products related to their design criteria. - Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.
Knowledge		
- Know how to make freestanding structures stronger, stiffer and more stable - Know and use technical vocabulary relevant to the project.		
Vocabulary		
cut, fold, join, fix, structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic, circle, triangle, square, rectangle, cuboid, cube, cylinder, design, make, evaluate, user, purpose, ideas, design criteria, product, function		

Year 3	Focus: Mechanical systems	Outcome: Children in year 3 will create an interactive classroom display using levers and linkages. This will link to their topic of rivers, and be an interactive tool to help other children understand.
Skills		
Designing	Making	Evaluating
- Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. - Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas.	- Plan the main stages of making - Select from and use a range of appropriate utensils, tools - and equipment with some accuracy related to their product. - Select from and use finishing techniques suitable for the product they are creating.	- Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. - Test their product against the original design criteria and with the intended user. - Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.
Knowledge		
- Know how levers and linkage mechanisms work - Know the difference between fixed and loose pivots		
Vocabulary		
mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief		

Year 3	Focus: Textiles	Outcome: create a tunic for a Roman soldier. This will have to fit onto a small doll. Children will use templates and allow for the seam. Children will use running and over sew stitch to join the materials.
Skills		
Designing	Making	Evaluating
- Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. - Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas.	- Plan the main stages of making - Select from and use a range of appropriate utensils, tools and equipment with some accuracy related to their product. - Select from and use finishing techniques suitable for the product they are creating.	- Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. - Test their product against the original design criteria and with the intended user. - Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.
Knowledge		
- Know how to strengthen, stiffen and reinforce existing fabrics. - Know how to securely join two pieces of fabric together. - Know the need for patterns and seam allowances		
Vocabulary		
fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces		

Year 3	Focus: Food	Outcome: create a Vesuvio pasta salad using the volcano shaped pasta. This will be served to the opposite year 3 class who will offer feedback, after tasting their own salad in comparison.
Skills		
Designing	Making	Evaluating
• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas.	• Plan the main stages of making • Select from and use a range of appropriate utensils, tools • and equipment with some accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating.	• Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.
Knowledge		
• Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product.		
Vocabulary		
name of products, names of equipment, utensils, techniques and ingredients, texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested, healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory evaluations		

Year 4	Focus: Electronic systems	Outcome: Children in year 4 children will create a reading light or torch that they could use at night to read in their bedroom. This will promote reading for pleasure and children, will utilise their knowledge of switches to create their battery-powered product.
Skills		
Designing	Making	Evaluating
• Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.	• Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties and aesthetic qualities. • Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties.	• Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.
Knowledge		
• Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project.		
Vocabulary		
series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief		

Year 4	Focus: Food	Outcome: Children in year 4 will prepare vegetables for a stew, talking about growing the vegetables and if they added meat would it have been reared (pork, lamb, chicken or beef) or caught (game and wild meats).
Skills		
Designing	Making	Evaluating
- Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. - Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. - Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.	- Order the main stages of making. - Select and use appropriate tools to measure, mark out, - Cut, score, shape and combine with some accuracy related to their products. - Explain their choice of materials according to functional properties and aesthetic qualities. - Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties.	- Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. - Test and evaluate their own products against design criteria and the intended user and purpose. - Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.
Knowledge		
- Know and use relevant technical and sensory vocabulary appropriately. - Understand whether meat products are grown, reared or caught.		
Vocabulary		
Name of products, names of equipment, utensils, techniques and ingredients, texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory evaluations		

Year 4	Focus: Shell Structures	Outcome: Children in year 4 will design and create the packaging for a new product which will be exported to the USA and Canada. They will have to think about the shape of the 3D packaging, how this will ship (so it needs to be strong), and how it will attract the customer on the shelves. They will create prototypes of nets for their products and then use these to inform their making process.
Skills		
Designing	Making	Evaluating
- Use research and develop 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 ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	- Select from and use a wider range of tools and equipment to perform practical tasks [for example, 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.	- Investigate and analyse a range of existing products - Evaluate ideas and products against their own design criteria and consider the views of others to improve their work - Understand how key events and individuals have helped shape the world
Knowledge		
- Know how to construct strong, stiff shell structures. - Know how to use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. - Know and use technical vocabulary relevant to the project.		
Vocabulary		
shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype		

Year 5	Focus: Pulleys and gears	Outcome: Create a moon buggy that will have pulleys and gears using Meccano or other building materials. It will have to be able to move across different surfaces and tested out on the playground in various terrain.
Skills		
Designing	Making	Evaluating
- Generate innovative ideas through research including surveys, interviews and questionnaires. And discussion with peers to develop a design brief and criteria for a design specification. - Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. - Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aided design	- Produce detailed lists of equipment and fabrics relevant to their tasks - Write a step-by-step plan, including a list of resources required. - Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	- Produce detailed lists of equipment and fabrics relevant to their tasks - Write a step-by-step plan, including a list of resources required. - Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.
Knowledge		
- Know that mechanical and electrical systems have an input, process and an output - Know that gears and pulleys can be used to speed up, slow down or change direction of movement		
Vocabulary		
pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output, design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief		

Year 5	Focus: Food	Outcome: Children in year 5 will create a chimichurri sauce to be added to a pre-cooked protein (Quorn, chicken or steak), this will be tasted along with tortilla. Children will need to consider what they like and dislike about the dish, and what would make it better in the future.
Skills		
Designing	Making	Evaluating
- Generate innovative ideas through research including surveys, interviews and questionnaires. And discussion with peers to develop a design brief and criteria for a design specification. - Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. - Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aided design	- Produce detailed lists of equipment and fabrics relevant to their tasks - Write a step-by-step plan, including a list of resources required. - Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	- Investigate and analyse products linked to their final product. - Compare the final product to the original design specification and record the evaluations. - Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. - Consider the views of others to improve their work
Knowledge		
- Know how to use utensils and equipment including heat sources to prepare and cook food. - Understand about seasonality in relation to food products.		
Vocabulary		
ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, design specification, innovative, research, evaluate, design brief		

Year 5	Focus: Textiles	Outcome: Children in year 5 will make an insulating bag to keep a warm drink hot. Children will test the temperature of a warm drink before putting it in their bag and test it again every 30 minutes to see which bag insulated the best. The bag will surround the drink but not cover the top. Children will have to use pattern pieces and leave for a seam allowance.
Skills		
Designing	Making	Evaluating
- Generate innovative ideas through research including surveys, interviews and questionnaires. And discussion with peers to develop a design brief and criteria for a design specification. - Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. - Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aided design	- Produce detailed lists of equipment and fabrics relevant to their tasks - Write a step-by-step plan, including a list of resources required. - Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	- Investigate and analyse products linked to their final product. - Compare the final product to the original design specification and record the evaluations. - Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. - Consider the views of others to improve their work
Knowledge		
- Know how to produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. - Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. - Know and use technical vocabulary relevant to the project.		
Vocabulary		
seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype		

Year 6	Focus: Food	Outcome: Children in year 6 will create an egg fried rice dish with vegetables. Children will need to consider what they like and dislike about the dish thinking in particular about textures and tastes. They will also compare and evaluate their dish compared to others that are on the market.
Skills		
Designing	Making	Evaluating
• Use research using surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorative techniques suitable for the product they are designing and making.	• Continually evaluate and modify the working features of the product to match the initial design specification. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Test the system to demonstrate its effectiveness for the intended user and purpose.
Knowledge		
• Know and use relevant technical and sensory vocabulary. • Understand the source of different food products.		
Vocabulary		
ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, design specification, innovative, research, evaluate, design brief		

Year 6	Focus: Structures	Outcome: Create their own periscope to be able to look out over the trenches. They will need to design it to be strong, considering weather conditions and possible damage from war. This will be tested outside on the playground and see if children can see around buildings.	
Skills			
Designing	Making	Evaluating	
• Use research using surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorative techniques suitable for the product they are designing and making.	• Continually evaluate and modify the working features of the product to match the initial design specification. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Test the system to demonstrate its effectiveness for the intended user and purpose.	
Knowledge			
• Know how to strengthen, stiffen and reinforce 3D frameworks • Know that light travels in straight lines (retrieval from Y6 science)			
Vocabulary			
frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional			

Year 6	Focus: Electronic systems	Outcome: Children in year 6 will make a buzzer alarm system as a warming for polar bears in an arctic region. Children will have to create a system with a switch that can be triggered using pressure. They will have to design and consider the ways in which this will remain weatherproof and survive arctic winters.
Skills		
Designing	Making	Evaluating
- Use research using surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products. - Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. - Generate and develop innovative ideas and share and clarify these through discussion. - Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.	- Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. - Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. - Use finishing and decorative techniques suitable for the product they are designing and making.	- Continually evaluate and modify the working features of the product to match the initial design specification. - Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. - Test the system to demonstrate its effectiveness for the intended user and purpose.
Knowledge		
- Know how to use electrical systems in their products linked to science coverage. - Know how to apply their understanding of computing to program, monitor and control their products. - Know and use technical vocabulary relevant to the project.		
Vocabulary		
series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart, function, innovative, design specification, design brief, user, purpose		