# Gladstone Road Primary School D & T (STEM TEAM)

## Curriculum design, LTP & Vocabulary Progression 2020/2021

Here at Gladstone Road Primary School, our **intent** for our Design and Technology approach is to allow children to thrive in our rapidly ever changing world by providing every opportunity to become independent learners and creative problem solvers. We are passionate about our role and we want our children to think as confident individuals, engage positively as part of a team and become resilient, resourceful thinkers to equip them for their futures, their careers and real life day to day activities.

**Our intent is for our pupils to:**

- Achieve their absolute potential by having the highest expectations of their own learning
- To question the ever changing world around them from an early age and be curious to ask questions to extend their existing knowledge. This will be scaffolded by positive relationships in the nurturing, safe environment of our school and encouraged at home.
- Identify needs and opportunities and to respond to them by developing a range of exciting, creative ideas and by making products and systems, with a purpose aimed at specific individual and groups.
- Be inspired through the promotion of practical skills alongside the subject knowledge of Mathematics, Science, Engineering, History and Art and Design
- Evaluate past and present design technology and encourage children to develop a critical understanding of this impact in their world and the wider world.
- To try and explore new ideas, learn from mistakes in a safe environment and make their own choices.

**We implement our Design and Technology curriculum through:**

- In EYFS, we implement DT by providing children with a wide range of indoor and outdoor construction equipment. We provide the children with a variety of shapes and boxes in treasure modelling. We allow the children to independently access a variety of joining materials such as string, sellotape, gaffa tape and pipe cleaners so they can experiment with the most effective way of joining to create an effect or model. The process of planning and designing is also a large focus of the curriculum. Children are well trained in the area of construction and are encouraged to design and plan a model before they create it. We encourage the language of evaluation both for their own and peers products. We also ensure that safety measure and procedures for preparing food play a large part in the curriculum at Gladstone Road.
- A learning sequence of Design, Make, Evaluate and drawing on Technical Knowledge and embedding and encouraging key vocabulary throughout the pupils Design Technology journey from EYFS to Year 6.
- Linking the units to the topics for each term/half-term so that each unit has a clear purpose. We ensure that the DT projects are linked cross curricula in order to give the children a more memorable and purposeful experience.
- Topics books will reflect the learning journey of what is being taught through vocabulary, written work, relevant diagrams, evidence of prototypes and photographs.

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- An innovative, creative and exciting approach using a range of high quality resources.
- Opportunities for all children to access Greater Depth learning and for all pupils to think innovatively to enable them to learn the skills for enterprising for their adult lives.
- Opportunities to enrich the lives of our pupils for today and their futures.

The National Curriculum provides a structure to our units and each of the lessons throughout the pupils journey are underpinned by Design Technology progression of skills so skills are built upon each year ensuring a secure knowledge of this exciting subject with many cross curricular links, such as PSHE for effective teamwork and resilient thinking, the sharing of ideas and keeping themselves and others safe, Computing for use of Computer Aided Design and Programming, Art and Design for creating inspiring design displaying exploded diagrams, Mathematics for measuring materials, weighing ingredients and studying angles through programming, Science when learning about circuits and how electricity works, History for the inspiration behind a range of structures near and far are all but just a few of our carefully thought out links.

**Our Impact**

We are proud of the **impact** of our Design and Technology approach and much thought, care and consideration has been given to ensure pupils design, make and evaluate purposeful products linked to themes and that they are proud of and excited about their creations.

We truly believe that high quality Design Technology teaching and learning is essential to the contribution of a creative, resilient and critical future work force and requires many skills that the curriculum covers.

Design Technology is an amazing subject within our National Curriculum which excites reluctant learns who may shy away from subjects such as Mathematics and Science and acts as a vehicles to move these otherwise tricky concepts to a more hands on, exciting approach, allowing children to see subjects such as Mathematics and Science from a different, more real life perspective- so ideas can be understood and digested easily. We are passionate about Design Technology and we see our role as enthusiastic practitioners, extremely significant.

We understand that today's lessons will shape our future.

Here's what our children say:

Evie *"I love D&T because you get the make things that are your own creation and that are individual to everyone else's ideas*."

Daisy *"I like D&T because you can make things and keep them afterwards and you always remember why you made them."*

Year 2 child *"We can cook things and make things, it's exciting!"*

Year 4 child "DT is awesome. *You make cool things. It teaches you how to make things. You can play with your creations."*

Year 5 child *"It excites me. It's really fun. I would like to do it every week!"*

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| KS1 | **Autumn Term**<br>Me and My World | **Spring Term**<br>Amazing Animals | **Summer Term**<br>Pirates |
|---|---|---|---|
| **Y1** | **D & T Element – Food and nutrition**<br>Fruit Salad<br><br>Skills to be developed:<br>-To design a fruit salad.<br>use the basic principles of a healthy and varied diet to prepare dishes<br>**-**To use the basic principles of a healthy and varied diet<br>-To examine, taste, describe, and sort a variety of fruit and vegetables.<br>-To understand where food comes from<br>- To know that fruits and vegetables can grow in one of three places.<br>-To design purposeful, functional, appealing products for themselves and other users based on design criteria<br>-To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology<br>-To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]<br>-select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics<br>-To explore and evaluate a range of existing products | **D & T Element - Structures**<br>Making a house for Percy<br><br>Skills to be developed:<br><br>-Explore and evaluate a range of existing products<br><br>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology<br><br>-Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing.<br><br>-Design purposeful, functional, appealing products for themselves and other users based on design criteria<br><br>-Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.<br>-Evaluate their ideas and products against design criteria | **D & T Element - Mechanisms**<br>STEM - Boats<br><br>Skills to be developed:<br>-To design purposeful, functional, appealing products for themselves and other users based on design criteria<br>-To discuss and find out about the purpose of boats and the materials they are made out of.<br>-To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.<br>-To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]<br>-To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics<br>-To explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.<br>-To evaluate their ideas and products against design criteria |

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| | -To evaluate their ideas and products against design criteria | | |
| Design Vocabulary | design criteria, requirements, identify, combinations, describing, reflecting, reviewing, labels, fruits, grouping, describe , packaging, savoury, sweet, product, vegetables, texture, taste. | Design criteria, requirements, describing, combinations functioning, finished product | Design criteria, labels, describing Properties, prediction, reviewing comparing, functioning, material, adjective, properties, exploration, function, requirements, shape |
| Make Vocabulary | Seed, adjective, persuade, health , safety, hygiene, peel, grate, cut | Scissors, assemble, structure, construction, gluing, stiffness, stapling | Paddle, functioning, net, mechanisms, movement, assemble, shape |
| Evaluate Vocabulary | evaluating, alter, improvements Reflection | Reviewing, reflecting, evaluating, alter, improvements, finished product | Evaluating, reflecting , reviewing, improvements, Compare, finished product, alter |
| Technical Knowledge Vocabulary | vegetables, grouping, textures, board, Core, seeds, fruit, root, apron, knife, vine, stem, leaves | 2D/3D shapes, properties | vehicles, sink, float structure, vessel, net, scientist, function, boat |

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| KS1 | **Autumn Term**<br>Paddington | **Spring Term**<br>Space | **Summer Term**<br>The Lonely Beast |
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| **Y2** | **D & T Element - Mechanisms**<br>STEM – Buggy/carriages<br><br><u>Skills to be developed:</u><br>-Explore and evaluate a range of existing products<br>-Select from and use a range of tools and equipment to perform practical tasks.<br>-Generate, develop, model and communicate their ideas through talking.<br>-Design purposeful, functional, appealing products for themselves and other users based on design criteria<br>-Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics<br>-Select from and use a wide range of materials and components,<br>according to their characteristics<br>-To mark out, cut and join fabric pieces to make the main part of their puppet<br>-To use appropriate finishing techniques<br>-Evaluate their ideas and products against design criteria | **D & T Element – Food and nutrition**<br>Vegetable and protein wrap<br><br><u>Skills to be developed:</u><br>-Understand where food comes from.<br>-To investigate and analyse a range of existing products (vegetables, dairy and proteins)<br>-Design purposeful, functional, appealing products for themselves and other users based on design criteria<br>-Use the basic principles of a healthy and varied diet to prepare dishes<br>-To select from and use a range of tools and equipment to prepare ingredients.<br>-To know how to prepare ingredients hygienically. | **D & T Element - Textiles**<br>Hand puppet<br><br><u>Skills to be developed:</u><br>-Explore and evaluate a range of existing products<br>-Select from and use a range of tools and equipment to perform practical tasks.<br>-Generate, develop, model and communicate their ideas through talking.<br>-Generate, develop, model and communicate their ideas through talking.<br>-Design purposeful, functional, appealing products for themselves and other users based on design criteria<br>-Select from and use a wide range of materials and components, including … textiles according to their characteristics<br>-Evaluate their ideas and products against design criteria |

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| **Design Vocabulary** | User, vehicle generate, communicate, design, materials, design criteria, wheel, axle axle holder, chassis, body, cab, purpose, audience, features, suitable, vehicle | Natural world, fruit and vegetables (names of a variety of each), leaves, stems, roots, flowers, bread and other cereals – (wheat / grain / flour), meat, fish (names of different animals) Names of meat and veg/fruit products (bacon, pork, beef, pasta, bread, juice, chips), healthy / unhealthy balanced diet, Eatwell Plate, soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard, portion, combination, creating, design, design criteria, sketch, properties, audience, user, Purpose, food group, food source, choosing, ingredients | Design, properties, user, purpose, product, fabric, design criteria, audience, plan, purpose, function, sketch, user, features, function, suitability, strength, decorate fabric, pattern, suitable, purpose |
| **Make Vocabulary** | Names of tools, equipment and material, functional, joining, mock up, components, make, assembling, stable/stability, cutting, hack saw sawing, finishing, shaping, joining. | Hygiene, wrap, tin, foil, cling film, flexible, prepare, ingredients | Needle, tread, joining, mock up, mark up, function, make, fastenings, joining, join, joining, techniques, running stitch, assembling, features, components, threading the needle, finishing techniques, decorate, finish, template, paper pattern, make |
| **Evaluate Vocabulary** | Evaluate, quality, functioning, suitable, audience, purpose | Evaluate, finished productive, healthy | Evaluate, finished product, quality |
| **Technical Knowledge Vocabulary** | Moving parts, stability, strength, wheels, axle, axle holder, chassis, body, mechanism | Flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, techniques,, claw grip Bridge, names of equipment and utensils | Threading the needle, needle, thread, fastening, joining |

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| | | hygiene, nutrition, fatty and sugary foods, unsaturated oils and spreads, milk, cheese, yogurt, dairy / dairy alternative, potatoes, pasta, bread, rice carbohydrates, fruit / vegetables, meat, beans, pulses, fish, eggs,<br>farmed, grown, caught, manufactured<br>investigating tasting, taste, texture, appearance, smell | |

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| Lower KS2 | Autumn Term | Spring Term | Summer Term |
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| **Y3**<br>**Key person/event**<br>History of greenhouses and designers/Eden Project | **D & T Element - Mechanisms**<br>Pneumatics systems<br><br>**Skills to be developed:**<br>-Investigate/analyse a range of existing products that use air.<br>-Understand and use different pneumatic systems.<br>-Generate, develop, and communicate their ideas (of creating a pneumatic animal for the Stone Age story) through discussion and annotated sketches<br>-Develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.<br>-Use pneumatic systems so that the final product has a moving part operated by a pneumatic system.<br>-Select and use a wider range of tools and equipment to perform practical tasks accurately.<br>-Select and use a wider range of materials and components, according to their functional properties and aesthetic qualities.<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. | **D & T Element – Cooking & Nutrition**<br>Perfect Pizza<br><br>**Skills to be developed:**<br>-To understand and apply the principles of a healthy and varied diet.<br>-To investigate and analyse a range of existing products<br>-To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.<br>-To explore and evaluate a range of existing pizza toppings to develop design criteria<br>-To select from and use a range of tools and equipment to prepare ingredients.<br>-To know that a variety of food products are grown, reared or caught.<br>-To know how to prepare ingredients hygienically.<br>-To understand and apply the principles of a healthy and varied diet to develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.<br>To prepare and cook a pizza using appropriate cooking techniques. | **D & T Element – Structures & Computer-aided design**<br>Mini Greenhouses<br><br>**Skills to be developed:**<br>-To investigate and analyse a range of existing greenhouses.<br>-To understand how key events and individuals in design and technology have helped shape the world.<br>-To develop and communicate their ideas through discussion, prototypes, and computer-aided design. ( CAD)<br>-To apply their understanding of how to strengthen, stiffen and reinforce structures.<br>-To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.<br>-To develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.<br>-To select and use a wider range of materials and components, according to their functional properties and aesthetic qualities.<br>-To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. |
| **Design Vocabulary** | Labelling, appeal, comparison, benefits, pneumatic system, key features, syringes, model, target audience, exploded diagrams, | labelling, target audience, nutrition appearance of pizza/dish, appeal, benefits, recipe, health benefits | Target audience, purpose, benefit, properties, frame structure, nets, frame, appeal, labelling, exploded diagrams key features. |

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| | | taste, attraction, texture<br>sweet, sour, hot, spicy, annotated sketch, user, design criteria, purpose, planning, recipe, key features, | |
| **Make Vocabulary** | syringes, constructing, prototype, secure, cutting, motion | Recipe, hygiencially, utensils, techniques, | Construction, structure, secure, nets, frame, frame structure, reinforcing, strengthening, beam, strength, secure, stability, cutting, folding, tie, joining, strength |
| **Evaluate Vocabulary** | Suggesting, modification, constructive criticism, justify opinion, review, views, | Evaluation, views, justifying opinions, constructive critism, smell, preference, greasy, moist, cook, fresh, savoury, spicy, hot, sour, sweet, taste, texture, sensory, techniques | Comparing, effective, suggesting, review, views, benefits, modification, review, justify, opinion, constructive criticism |
| **Technical Knowledge Vocabulary** | pneumatic system, system, cutting, constructing, secure, motion | Reared, caught ,grown, cutting, slicing Spreading, contamination<br>names of equipment, utensils, techniques and ingredients , recipe, hygienically, nutrition, food growth | Ventilation, climate, food growth, impact on industry, seasonal, geometric shapes |

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| Lower KS2 | Autumn Term | Spring Term<br>Greeks | Summer Term<br>Yorkshire |
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| **Y4**<br>**Key person/event**<br>History of Betty's Tearoom/key individual | **D & T Element – Textiles and Electricity**<br>Light up Christmas stockings<br><br><u>Skills to be developed:</u><br><br>-Investigate and analyse a range of existing products.<br>-Select from and use a wider range of tools to perform practical tasks.<br>-Construct a simple series, electrical circuit, identifying and naming its basic parts including cells**,** wires, bulbs, switches and buzzers.<br>-Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.<br>-Generate, develop, model and communicate their ideas through discussion, annotated sketches.<br>-Select from and use a wider range of materials and components including textiles according to their functional properties and aesthetic qualities.<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. | **D & T Element – Structures & Programming**<br>Minotaur mazes and control a programmable toy around a maze<br><br><u>Skills to be developed:</u><br>-Investigate and analyse a range of existing products.<br>-Generate, develop, model and communicate their ideas through discussion, annotated sketches.<br>-Select from and use a wider range of tools and equipment to perform practical tasks accurately.<br>-Apply their understanding to strengthen, stiffen and reinforce more complex structures.<br>-Develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose, aimed at individuals and groups.<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. | **D & T Element – Cooking & Nutrition**<br>Afternoon Tea for parents/carers<br><br><u>Skills to be developed:</u><br>-Investigate and analyse a range of existing products.<br>-Understand and apply the principles of a health varied diet.<br>-Understand how key events and individuals in design technology have helped shape the world.<br>-Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.<br>-Use research and develop design criteria, to inform the design of innovation, functional and appealing products that are fit for purpose, aimed at individuals and groups.<br>-Generate, develop, model and communicate their ideas through discussion, annotated sketches.<br><br>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.<br><br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. |
| **Design Vocabulary** | Aesthetically pleasing, desired effect, increase, decrease, personalising, target audience, tastes testing, design criteria, | Target audience/user, comparing, products, purpose, prior knowledge | Target audience/user, comparing, products, purpose, prior knowledge, town, county, North Yorkshire, taste |

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| | articulating, in accordance, template, characteristics, effective, ineffective, budget, products, inspiration, original design, environmental impact, cost of production, purpose, prior knowledge, architects, light, shadow, patterns, disadvantages, advantages, | mazes, Minotaur Design criteria centimetre squared plan desired effect aesthetically pleasing inspiration order in accordance, original design, Desired effect, articulating, effective, ineffective texture | testing. Inspiration, desired effects, characteristics, effective, ineffective, environmental impact. Effective, ineffective, budget, market research, informs, findings. Design criteria, personalising, inspiration textural effects label, captions, diagram, articulating, taste testing, products, original design, purpose, comparing, taste, texture, flavour. |
| **Make Vocabulary** | Net, budget, fastenings, | measuring, template equipment resources marking, cutting, finish | budget, increase, decrease, finish |
| **Evaluate Vocabulary** | Increase, decrease, appropriate, textural effects, adapting, comparing, evaluating, effective, ineffective, comparing, modification, environmental impact | design criteria comparing modification, comparing, appropriate original design effective, ineffective finish in accordance texture | environmental impact textural effects adapting, evaluating, finish modification |
| **Technical Knowledge Vocabulary** | Pavilion structure, air resistant, reduce, measuring, frame structure, measuring, marking, cutting, electrical circuit, switch, workmanship, kinetic energy, frame, shell structures, hygiene, effective, ineffective, conductors, insulators, battery, stored electricity, reinforcing, cladding | frame structure workmanship, , secure techniques adapting evaluating | workmanship, effective, ineffective, nutrients. increase, decrease measuring, grams, g, degrees, heat |

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| Upper KS2 | **Autumn Term**<br>Beside the Seaside | **Spring Term**<br>Egypt | **Summer Term**<br>Local Area - York |
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| **Y5**<br>**Key person/event**<br>Joseph Rowntree and other chocolatiers | **D & T Element – Structures**<br>Build different bridges and the structures which support them<br><br><u>Skills to be developed:</u><br>-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<br>-Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately<br>-Investigate and analyse a range of existing products<br>**-**Apply their understanding of how to strengthen, stiffen and reinforce more complex structures<br>-Generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes<br>-Consider the views of others to improve their work<br>-Understand how key events and individuals in design and technology have helped shape the world<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work | **D & T Element – Mechanisms & Computer-aided design**<br>Moving toy based on animals/ ancient gods using cams<br><br><u>Skills to be developed:</u><br>-Investigate and analyse a range of existing products.<br>-Understand and use mechanical systems in their products (for example cams).<br>-Generate, develop, model and communicate their ideas through discussion and prototypes.<br>-Select from and use a wider range of tools and equipment to perfom practical tasks (for example, cutting, shaping, joining and finishing), accurately.<br>-Select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities.<br>-Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.<br>-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.<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work**.** | **D & T Element – Cooking & Nutrition**<br>Biscuit creations linked to York's chocolate story<br><br><u>Skills to be developed:</u><br>-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.<br>-Investigate and analyse a range of existing products.<br>-Understand how key events and individuals in design and technology have helped shape the world.<br>-Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.<br>-Investigate and analyse a range of existing products.<br>-Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams.<br>-Select from and use a wider range of tools and equipment to perform practical tasks accurately.<br>-Select from and use a wider range of materials and components, including ingredients, according to their functional properties and aesthetic qualities.<br>-Prepare and cook a variety of predominantly savoury dishes.<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. |

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| **Design Vocabulary** | design, stable, structure, support, weight, create, frame, focus, triangulation , distance | mixture, structure, mechanism, input, output, accurately, storyboarding | adapting, traditional recipe, nutritional value, alters, remove, substitute, additional ingredients, amended method, incorporate, relevant changes, appealing packaging, reflect |
| **Make Vocabulary** | Range, beam bridges, truss bridges, span, given distance, supports, load, structure, measuring and marking wood, accurately, appropriate tools, correct techniques, reinforcement | design brief, focus, sliders, pivots, folds, produce movement, layers, spacers, mechanical parts, aesthetically pleasing | cutting, preparing, cross-contamination, step by step |
| **Evaluate Vocabulary** | adapt, improve, identifying, points of weakness, reinforcing, improvements | identifying, nutritional differences, products, | completed product, original design, modifications, improve, reliability, aesthetics, incorporate |
| **Technical Knowledge Vocabulary** | beam bridge, arch bridge, truss bridge, suspension bridge, compression, tension, stronger structures, weaker structures, reinforce structures, articulating | motion, mechanism, control movement, | reared, processed, constitutes, balanced diet, adapt, healthier, comparing, nutritional calculator, healthier option |

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| Upper KS2 | **Autumn Term**<br>WW2 | **Spring Term**<br>Rainforests | **Summer Term**<br>London |
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| **Y6**<br>**Key person/event**<br>Influential computer scientists. | **D & T Element – Textiles**<br>Repurposing materials to create a new product 'Funky Furnishing'<br><br>Skills to be developed<br>-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<br>- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design<br>-Investigate and analyse a range of existing products<br>- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work<br>-Select from and use a wider range of materials and textiles according to their functional properties and aesthetic qualities<br>-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<br>-Select from and use wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing. | **D & T Element – Food**<br>Design and make a breakfast bar using a range of ingredients found in the rainforest/fair-trade foods.<br><br>Skills to be developed<br>-Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.<br>-Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose aimed at particular groups or individuals.<br>-Understand and apply the principles of a healthy and varied diet.<br>-Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.<br>-Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose aimed at particular groups or individuals.<br>-Select from and use a wider range of materials and components including ingredients according to their functional properties and aesthetic qualities.<br>-Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. | **D & T Element – Electrical systems/Programming and control**<br>Use Crumble to program and control a nightlight which could be used in your room when staying in London.<br><br>Skills to be developed<br>-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.<br>-Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design.<br>-Select from and use a wider range of materials and components.<br>-Select from and use a wider range of tools and equipment to perform practical tasks accurately.<br>-Investigate and analyse a range of existing products.<br>-Understand how key events and individuals in design and technology have helped shape the world<br>-Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.<br>-Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors).<br>-Apply their understanding of computing to program, monitor and control their products.<br>-Apply their understanding of how to strengthen, stiffen, and reinforce more complex structures. |

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| | -Develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups | | |
| **Design Vocabulary** | stuffed, considering, main component, required, appropriate template, considering proportions, individual components, accordance to specification, design criteria, specific theme, annotating | method, ingredients, research Relevant ingredients research Quantities, timescales taste testing, texture scoring improvement innovative., value for money, cost effective focus group users, combination,, equipment, design specification, | electronic, simple, electrical control circuit, labelled design, positive, negative, LED, battery, identifying, components, perspective, generating, modelling, prototypes |
| **Make Vocabulary** | 3D, 2D, measuring, marking, fabric, accurately, independently, strong, secure, blanket stitches, joining, applique, attach, decoration, template, pinning panels, running stitch, secure fastening | Methods, quantities, timescales Process, ingredients. Equipment, health and safety | Circuit, referring, design criteria, mapping out, components, tweaking, constructing, high quality, testing, incorporating |
| **Evaluate Vocabulary** | testing, end product, further improvements, evaluating continually | completed product, original design, modifications, improve, reliability, aesthetics, incorporate adapting, process | testing, identifying, suggestions, improvements, evaluating, feedback |
| **Technical Knowledge Vocabulary** | fabric, blanket stitch, even, regular, threading, decorative stitches, application, outcome, technique, regularity of stitches | relevant ingredients, equipment, origin combinations, complement, process, farm to fork Bananas, oranges, pineapple, papaya, tangerines, coconut, mangos, lemons cross contamination, 'on the go' nutritious, nutrients. Fairtrade, sustainable, sustainability balanced diet, carbohydrates, protein, vitamins, minerals, fibre, water, nutrients, fats, oils, , sugar, food groups, meat, fish, fruit and vegetables, dairy products, hygienically, complement, | batteries, acid, magnetic field, key components, functioning circuit, conductor, series circuit, parallel circuit |

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## Curriculum design, LTP & Vocabulary Progression 2020/2021

| PROGRESSION DOCUMENT | | | | | | | |
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| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Designing | | | | | | | |
| Understanding contexts, users and purposes | C of L - By 67 Months - Thinks of his/her own ideas and different ways of doing things, uses imagination in play<br><br>- Makes links and connections in their experiences, developing ideas of grouping, sequences or patterns.<br><br>CLL/S<br>Shows some awareness of the listener by making changes to language and non verbal features. Recounts experiences and imagine possibilities, often connecting ideas | • Begin to work within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, and the wider environment<br>• name what products they are designing and making<br>• say whether their products are for themselves or other users<br>• talk about what their products are for<br>• say how their products will work | • Start to work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, and the wider environment<br>• state what products they are designing and making<br>• say the audience that their product is for.<br>• describe what the purpose of their product is.<br>• describe how their products will work<br>• say how they will make their products suitable for their intended users<br>• with support, use simple design criteria to help develop their ideas | • work with some confidence within a range of contexts, such as the home, school, leisure, culture, and the wider environment<br>• talk about the purpose of their products<br>• begin to discuss the design features of their products that will appeal to intended users<br>• explain how some key parts of their products work<br>• collect information about the needs and wants of particular individuals and groups<br>• with support, begin to develop their own design criteria and use these to inform their ideas | • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, and the wider environment<br>• describe the purpose of their products<br>• identify and explain the design features of their products that will appeal to intended users<br>• explain how key parts of their products work<br>• gather information about the needs and wants of particular individuals and groups<br>• start to develop their own design criteria and use these to inform their ideas | • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment<br>• describe the purpose of their products<br>• indicate the design features of their products that will appeal to intended users<br>• explain how particular parts of their products work<br>*carry out research, using surveys, interviews, questionnaires and web-based resources<br>• identify the needs, wants, preferences and values of particular individuals and groups<br>• develop a simple design specification to guide their thinking | • work independently and confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment<br>• present the purpose of their products<br>• indicate and explain the design features of their products that will appeal to intended users<br>• explain how all parts of their products work<br>*carry out research, using surveys, interviews, questionnaires and web-based resources<br>• identify the needs, wants, preferences and values of particular individuals and groups<br>• develop a detailed design specification to guide their thinking |
| Generating, developing, modelling and communicating ideas | By 67+ Months – C of L<br><br>Review activities as he/she does them and changes the approach as required]<br><br>Thinks of his/her own ideas and different ways of doing things, uses imagination in play | • Draw on their own experience to help generate ideas<br>• Suggest ideas and explain what they are going to do<br>• Identify a target group for what they intend to design and make<br>• Model their ideas in card and paper<br>• Develop their design ideas applying | • Generate ideas by drawing on their own and other people's experiences.<br>• Develop their design ideas through discussion, observation, drawing and modelling.<br>• Identify a purpose for what they intend to design and make.<br>• Identify simple design criteria. | • Generate ideas for an item, considering its purpose and the user/s<br>• Identify a purpose and establish criteria for a successful product.<br>• Explore, develop and communicate design proposals by modelling ideas<br>• Use drawings with labels to develop and communicate ideas | • Generate realistic ideas, considering the purposes for which they are designing/needs of the user<br>• Make labelled drawings and annotated sketches from different views showing specific features<br>• Make design decisions that take into account | • Generate ideas through brainstorming and identify a purpose for their product<br>• Draw up a specification for their design<br>• Draw on the results of investigations, information sources, including ICT when developing design ideas<br>• Use computer aided design to develop and communicate ideas.<br>• Begin to make design decisions, taking into account constraints of time and resources. | • Communicate their ideas through detailed labelled drawings, annotated sketches and exploded diagrams.<br>• Develop an innovative design specification<br>• Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways ( using prototypes and pattern pieces)<br>• Make design decisions, taking into account constraints of time, resources and cost. |

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| | - Makes links and connections in their experiences, developing ideas of grouping, sequences or patterns.<br><br>CLL/S<br>Shows some awareness of the listener by making changes to language and non verbal features. Recounts experiences and imagine possibilities, often connecting ideas | findings from their earlier research | • Make simple drawings and label parts | | availability of resources. | | |
| Making | | | | | | | |
| Planning | By 67+ Months – C of L<br>Review activities as he/she does them and changes the approach as required<br><br>- Makes links and connections in their experiences, developing ideas of grouping, sequences or patterns. | • Select appropriate tools from a range given.<br>• Select appropriate materials from a range given<br>• Talk about the steps they will take in making their product. | • Begin to select tools and materials; use vocab' to name and describe them and begin to explain their choices.<br>• Plan by suggesting what to do next and begin to record in writing | • Begin to record a plan of the order of their work before starting.<br>• Select tools and materials needed and begin to explain why they suit the techniques used. | • Develop and record a clear plan of the order of the main stages of making.<br>• Select tools and materials needed and explain their choices in relation to the skills they will be using. | • Develop a clear plan of the order the making process will take and begin to suggest ideas for if an idea fails.<br>• Select suitable materials and components for the product.<br>• Explain the choice of material or component according to their functional properties. | • Formulate a step by step plan as a guide to making the product.<br>• Produce a concise list of tools, equipment and materials needed.<br>• Give clear explanations for their choices of materials and components according to their functional properties and aesthetic qualities. |
| Practical skills and techniques | By 67+ Months – C of L<br>Willing to try out new things and is open to new experiences<br><br>EAD<br>Selects and uses materials to work on processes that interest them. Through their explorations finds out and make decisions about how media and materials can be combined and changed. | • Make their design using appropriate techniques<br>• With help measure, mark out, cut and shape a range of materials<br>• Use tools eg scissors and a hole punch safely<br>• Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape<br>• Use simple finishing techniques to improve the | • Measure, cut and score with some accuracy<br>• Use hand tools safely and appropriately<br>• Assemble, join and combine materials in order to make a product<br>• Cut, shape and join fabric to make a simple garment. Use basic sewing techniques<br>• Choose and use appropriate finishing techniques | • Measure, mark out, cut, score and assemble components with more accuracy<br>• Work safely and accurately with a range of simple tools<br>• Think about their ideas as they make progress and be willing change things if this helps them improve their work<br>• Use finishing techniques strengthen and improve the | • Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques<br>• Join and combine materials and components accurately in temporary and permanent ways<br>• Sew using a range of different stitches, weave and knit<br>• Measure, tape or pin, cut and join fabric with some accuracy | • Measure and mark out accurately<br>• Use skills in using different tools and equipment safely and accurately<br>• Cut and join with accuracy to ensure a good-quality finish to the product | • Assemble components make working models<br>• Use tools safely and accurately<br>• Construct products using permanent joining techniques<br>• Make modifications as they go along<br>• Pin, sew and stitch materials together create a product<br>• Achieve a quality product<br>• Weigh and measure accurately (time, dry ingredients, liquids)<br>• Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens |

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| | | appearance of their product | | appearance of their product using a range of equipment including ICT | • Use simple graphical communication techniques | | |
| Evaluating products | | | | | | | |
| Own ideas and products. | By 67 Months<br>C of L<br>Thinks of his/her own ideas and different ways of doing things, uses imagination in play<br><br>Review activities as he/she does them and changes the approach as required<br><br>PSHE<br>SCA Confident to speak in front of their class, are willing to take a risk, and understands this is part of learning.<br>-Reviews their work and suggests how this could be approached differently.<br>Demonstrates resilience looking for their own way to move forward or overcome an issue. | • Evaluate their product by discussing how well it works in relation to the purpose<br>• Evaluate their products as they are developed, identifying strengths and possible changes they might make<br>• Evaluate their product by asking questions about what they have made and how they have gone about it | • Evaluate against their design criteria<br>• Evaluate their products as they are developed, identifying strengths and possible improvements they might make.<br>• Talk about their ideas, saying what they like and dislike about them | • Evaluate their product against original design criteria e.g. how well it meets its intended purpose | • Evaluate their work referring to their design criteria, both during and at the end of the assignment.<br>• Evaluate their products using their design criteria, carrying out appropriate tests.<br>• Identify the strengths and weaknesses in their products | • Evaluate a product against the original design specification<br>• Evaluate it personally and seek evaluation from others<br>• Evaluate against their original criteria and suggest ways that their product could be improved | • Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.<br>• Record their evaluations using drawings with labels<br>• Critically evaluate the quality of design, manufacture and fitness for purpose. |
| Existing products | By 67 months<br><br>C of L<br>- Makes links and connections in their experiences, developing ideas of grouping, sequences or patterns.<br>- Shows curiosity about objects and the world around them, and has particular interests.<br><br>PSHE | Explore existing products and talk about:<br>What the product is and what it is for.<br>Who the product is for.<br>Where the product might be used.<br>What the product is made from. | Explore existing products and discuss, draw and write about:<br>What the product is.<br>What the product is for.<br>Who the product is for.<br>How the product works.<br>How the product is used.<br>What materials it is made from.<br>What they like and dislike about the product. | Disassemble and evaluate familiar products.<br>Investigate and analyse:<br>• How well the product has been designed.<br>• How well the product has been made.<br>• Why materials have been used.<br>• How well the product works | Disassemble and evaluate familiar products.<br>Investigate and analyse:<br>How well the product has been designed and made.<br>What construction methods have been used.<br>How well the product achieves its purpose.<br>Who designed and made the product. | Disassemble and evaluate familiar products.<br>Investigate and analyse:<br>• Why materials have been chosen.<br>• How well the product achieves its purpose.<br>• How the product has been made. | Disassemble and evaluate familiar products.<br>Investigate and analyse:<br>• How well the product meets the user needs.<br>• How much the product costs to make.<br>• How innovative the product is.<br>• How sustainable the material is.<br>• What impact the product has beyond its intended purpose. |

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| | SCA Confident to speak in front of their class, are willing to take a risk, and understands this is part of learning.<br>-Reviews their work and suggests how this could be approached differently.<br>Demonstrates resilience looking for their own way to move forward or overcome an issue. | | | | Where the product was made.<br>When the product was made.<br>Whether the product can be recycled. | | |
| Key events and individuals | | | | Across KS2 pupils should know:<br>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products | Across KS2 pupils should know:<br>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products | Across KS2 pupils should know:<br>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products | Across KS2 pupils should know:<br>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products |
| Technical knowledge.<br>Pupils should know about: | | | | | | | |
| Making products work | By 67+ Months – C of L<br>Maintains focus for a period of time, showing high levels of engagement and paying attention to detail<br>- Shows curiosity about objects and the world around them, and has particular interests.<br><br>PSHE<br>SCA Confident to speak in front of their class, are willing to take a risk, and understands this is part of learning.<br>Reviews their work and suggests how this could be approached differently. | • about the simple working characteristics of materials and components<br>• how freestanding structures can be made stronger, stiffer and more stable<br>• that a 3-D textiles product can be assembled from two identical fabric shapes.<br>• that food ingredients should be combined according to their sensory characteristics<br>• the correct technical vocabulary for the projects they are undertaking | • about the simple working characteristics of materials and components<br>• about the movement of simple mechanisms such as levers, sliders, wheels and axles<br>• how freestanding structures can be made stronger, stiffer and more stable<br>• that food ingredients should be combined according to their sensory characteristics<br>• the correct technical vocabulary for the projects they are undertaking | • how to use learning from science to help design and make products that work<br>• how to use learning from mathematics to help design and make products that work<br>• that materials can be combined and mixed to create more useful characteristics<br>• that mechanical systems have an input, process and output<br>• the correct technical vocabulary for the projects they are undertaking<br>• how mechanical systems such as pneumatic systems create movement | how to use learning from science to help design and make products that work<br>• how to use learning from mathematics to help design and make products that work<br>• that materials have both functional properties and aesthetic qualities<br>• that materials can be combined and mixed to create more useful characteristics<br>• that electrical systems have an input, process and output<br>• the correct technical vocabulary for the projects they are undertaking<br>• how simple electrical circuits and | • how to use learning from science to help design and make products that work<br>• how to use learning from mathematics to help design and make products that work<br>• that materials have both functional properties and aesthetic qualities<br>• that materials can be combined and mixed to create more useful characteristics<br>• the correct technical vocabulary for the projects they are undertaking<br>• how mechanical systems such as cams or pulleys or gears create movement<br>• how to program a computer to monitor changes in the environment and control their products<br>• how to reinforce and strengthen a 3D framework | • how to use learning from science to help design and make products that work<br>• how to use learning from mathematics to help design and make products that work<br>• that materials have both functional properties and aesthetic qualities<br>• that materials can be combined and mixed to create more useful characteristics<br>• that mechanical and electrical systems have an input, process and output<br>• the correct technical vocabulary for the projects they are undertaking.<br>• how to reinforce and strengthen a 3D framework<br>• that a 3D textiles product can be made from a combination of fabric shapes |

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| | Demonstrates resilience looking for their own way to move forward or overcome an issue.<br><br>SSM<br>Children talk about the properties of shape and patterns, using vocabulary to describe position, direction and movement.<br><br>Estimates, measures, weighs and can compare and order objects. Talks about properties<br><br>UW<br>Knows the properties of some materials and can suggest some of the purposes they are used for | | | • how to program a computer to control their products<br>• how to make strong, stiff shell structures<br>• that food ingredients can be fresh, pre-cooked and processed | components can be used to create functional products<br>• how to program a computer to control their products<br>• that a single fabric shape can be used to make a 3D textiles product | | • that a recipe can be adapted by adding or substituting one or more ingredients |
| Cooking and nutrition | | | | | | | |
| Where food comes from. | By 67 months<br><br>UW<br>Knows that the environment and living things are influenced by human activity. | • Can talk about that all food comes from plants<br>or animals<br>• Begin to realise that food has to be farmed, grown elsewhere (e.g. home)<br>or caught | • Can discuss how all food comes from plants or animals<br>• that food has to be farmed, grown elsewhere (e.g. home) or caught | • Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens<br>and cattle) and caught (such as fish) in the UK, Europe and the wider world | Across KS2 pupils should know;<br>*that a recipe can be adapted a by adding or substituting one or more ingredients • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world | Across KS2 pupils should know:<br>• that a recipe can be adapted a by adding or substituting one or more ingredients<br>• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world<br><br>In late KS2 pupils should also know:<br>• that seasons may affect the food available<br>• how food is processed into ingredients that can be eaten or used in cooking | • Understand that seasons may affect the food available<br>• know and describe how food is processed into ingredients that can be eaten or used in cooking |
| Food preparation, cooking and nutrition | By 67 months<br>EAD<br>Selects and uses materials to work on processes that interest them. Through their explorations finds out | • Can begin to name and sort foods into the five groups in The<br>Eatwell plate.<br>• can discuss that everyone should eat | how to name and sort foods<br>into the five groups in The Eatwell plate<br>• that everyone should eat at<br>least five portions of fruit and | • Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically | In early KS2 pupils should also know: • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell Guide • | Across KS2 pupils should know:<br>• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source<br>• how to use a range of techniques such as peeling, chopping, slicing, | • Can prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. |

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| | and make decisions about how media and materials can be combined and changed | at least five portions of fruit and vegetables every day<br>• with some support, know how to prepare simple dishes safely and hygienically, without using a heat source<br>• demonstrate that they are beginning to use techniques such as cutting, peeling and grating | vegetables every day and explain why.<br>• can prepare simple dishes safely and hygienically, without using a heat source<br>• can use techniques such as cutting, peeling and grating and explain how to do it safely. | • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.<br>:<br>• know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate<br>• To explain that to be active and healthy, food and drink are needed to provide energy for the body | that to be active and healthy, food and drink are needed to provide energy for the body | grating, mixing, spreading, kneading and baking<br>In late KS2 pupils should also know:<br>• that recipes can be adapted to change the appearance, taste, texture and aroma<br>• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health | • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.<br>• Discuss how recipes can be adapted to change the appearance, taste, texture and aroma.<br>• can explain and consider that different food and drink contain different substances – nutrients, water and fibre – that are needed for health |