



Opening Doors, Enriching Lives

Design and Technology at Tanfield Lea Community Primary School

“The inventors of tomorrow have to be inspired today.” James Dyson

Pre-School

During EYFS, the essential building blocks of children's design and technology capability are established. They will be encouraged to explore, observe, solve problems, think critically, make decisions and to talk about why they have made their decisions. Each term will focus on specific skills and techniques, and our classroom provision will provide the children with the opportunities to build on learning over time.

Topic	Key Vocabulary	Key Knowledge/ Skills
Autumn - Food and nutrition and preparing food	Healthy, prepare, blend	Key skills: - Healthy food choices - Hygiene - Safe knife skills Talk: - Why fruits and vegetables are good for you - Hygiene - How we prepared our food Key resources: - Blender, knives
Spring - Junk Modelling	Scissors, cut, safety, join, stick	Key skills: - Introduce scissors and cutting skills. Cut snips of paper. - Explore different materials freely - Join different materials and explore different textures Talk: - Encourage children to talk about what they want to create Key resources: - Glue stick, masking tape, scissors
Summer - Stickman	Plan, attach	Key skills: - Explore how things work (Wind-up toys, pulleys, sets of cogs etc) - Develop their own ideas - How could they make their own stickman? - Children to decide which materials to use and express them Talk: - Listen and understand what children want to create before offering suggestions Key resources: String, sticks, sellotape, PVA glue, Stickman text

Reception

During EYFS, the essential building blocks of children's design and technology capability are established. They will be encouraged to explore, observe, solve problems, think critically, make decisions and to talk about why they have made their decisions. Each term will focus on specific skills and techniques, and our classroom provision will provide the children with the opportunities to build on learning over time.

Topic	Key Vocabulary	Key Knowledge/ Skills
Autumn - Textiles (Tie-dye)	Experiment, tie-dye, design	Key skills: - Experiment with colour and design - Work collaboratively, sharing ideas, resources and skills Talk: - Reflect on their designs and how they have achieved them - Talk about who would like their design and why Key resources: - Fabric (T-shirts, cloths), tie-dye inc, elastic bands, range of resources to explore
Autumn - Junk modelling - instruments	Purpose, ideas, evaluate	Key skills: - use scissors along straight and curved shapes - teach different techniques for joining materials (glue gun) - Build for a specific purpose Talk: - Express ideas - Discuss the process. - Evaluate their product Key resources:
Summer - Disassembly and Woodwork	Tools, measure, shape, assemble	Key skills: - Develop small motor skills so that they can use a range of tools safely and competently - Plan what they are going to make - Use a wider range of materials with greater accuracy to shape, assemble and join Talk: - Talk about what they are going to make before making it - Talk about the process Key resources: - range of tools for assembling, shaping, joining and measuring

KS1 - When Designing and making, children should be taught to:

Design	<ul style="list-style-type: none"> design purposeful, functional, appealing products for themselves and other users based on design criteria generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
Make	<ul style="list-style-type: none"> select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
Evaluate	<ul style="list-style-type: none"> explore and evaluate a range of existing products evaluate their ideas and products against design criteria
Technical Knowledge	<ul style="list-style-type: none"> build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
Cooking and nutrition	<ul style="list-style-type: none"> use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from.

Year One

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Spring Term 1 - Pirates DT focus - Moving Pictures Activities: Chn to explore different books with different moving pictures. How do they move? What do you like about them? Etc. Chn to practise making a moving picture with a slider mechanism. Chn to practise making a moving picture using a lever mechanism. Chn to practise making a moving picture using a wheel mechanism. Chn to design their own moving pictures using any mechanism they want to. Chn to make their moving picture using their choice of mechanism.</p>	<p>Plan, materials, ideas, use, model, market research, template</p> <p>Turn, sketch, fix, attach, levers, sliders, wheel, cutting, joining, finishing, mechanism,</p> <p>Change, unsuccessful, finished article, evaluate</p>	<p>Design -Generate ideas and explain what they are going to do. -Identify who they intend to design and make a product for. -Model ideas in card and paper. -Build on ideas from research.</p> <p>Make -With help, measure, mark out, cut and shape a range of materials. -Use tools (scissors) and a hole punch safely. -Assemble, join and combine materials and components together using a variety of methods (glues or tape) -Improve the appearance of the product by using finishing techniques</p> <p>Evaluate -Evaluate by discussing how well the product works (does it have the desired purpose?) -Evaluate by asking questions about what they have made and how they have made it.</p> <p>Technical Knowledge -Know about the simple working characteristics of materials and components -Know about the movement of simple mechanisms such as levers and sliders</p>
<p>Summer Term 2 - The Rainforest DT Focus - Food Technology - Fruit Kebab Activities: Healthy or unhealthy Taste test Instructions Design a label Make Evaluate</p>	<p>vegetables, healthy, unhealthy, compare, ingredients, chopping board, create, evaluate, fruit, amount, ingredients</p>	<p>Cooking and Nutrition -Know that all food comes from plants or animals. -Know that food has to be farmed, grown elsewhere (home) or caught. -Know that everyone should eat at least five portions of fruit and vegetables every day -Prepare simple dishes safely and hygienically, without using a heat source</p>

Year Two

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Autumn Term One :Textiles DT Focus: Textiles-Make a bear puppet Jam sandwich (Cross curricular) Activities: Investigate types of puppets. Design a puppet Make a hand puppet by sewing felt Decorate your puppet with different materials Evaluate puppets against design criteria.</p>	<p>Appealing, sew, thread, needle, evaluate, features, decorate, generate, shaping, joining,</p>	<p>Design -Generate and develop ideas through discussion, observation and modelling -Identify a purpose for what they intend to design and make -Create a design checklist -Draw a design and label parts</p> <p>Make -Begin to select tools and materials and use the vocabulary to describe and name them. -Measure, cut and score with some accuracy. -Use hand tools safely. -Assemble, join and combine materials and components together using a variety of materials and making changes to improve as they go along. -Use basic sewing techniques. Cut shape and join fabric to make a simple garment. (Parental engagement - Parent are invited to come in and help make puppets with children.)</p> <p>Evaluate: -Identify the products as they are developed for possible improvements and changes. -Evaluate by discussing how well the product works (does it have the desired purpose?) Linked to English and Geography</p>
<p>Spring Term One : Mechanisms DT Focus: Technical knowledge- wheels and axles. Activities: Investigate moving vehicles Explore wheels and axels Investigate suitability of materials by investigating and making mock ups. Make a fire engine using a range of materials</p>	<p>Vehicle, fast, slow, faster, slower, features, axles, chassis decorate, generate, improve, prefer, useful, modify, alter, adapt, original, evaluate, graphics</p>	<p>Design -Generate and develop ideas through discussion, observation, drawing and modelling. -Identify a purpose for what they intend to design and make. -Create a design checklist -Draw a design and label parts.</p> <p>Make -Begin to select tools and materials and use the vocabulary to describe and name them. -Measure, cut and score with some accuracy. -Use hand tools safely. -Assemble, join and combine materials and components together using a variety of materials and making changes to improve as they go along.</p> <p>Evaluate -Evaluate by discussing how well the product works (does it have the desired purpose?) -Evaluate by asking questions about what they have made and how they have made it Linked to English and History learning about the Great Fire of London</p> <p>Technical knowledge -Know about the movement of simple mechanisms such as levers, sliders, wheels and axles.</p>
<p>Spring Term Two : Food and Nutrition Preparing and making root vegetable soup. Activities: Healthy or unhealthy Name and sort foods into the five groups of the 'eat well' plate Tasting vegetables Weigh and measure ingredients Use techniques of peeling and cutting to prepare vegetables. Know that everyone should eat at least five portions of fruit and vegetables every day</p>	<p>root vegetables, food groups, healthy, unhealthy, compare, hygiene, peeling, evaluate, source, recipe, weight, nutrients, vegetarian, vegan, dietary requirements</p>	<p>Cooking and Nutrition -Know that all food comes from plants or animals. -Know that food has to be farmed, grown elsewhere (home) or caught. -Name and sort foods into the five groups in The eat-well plate. -Know that everyone should eat at least five portions of fruit and vegetables every day. -Prepare simple dishes safely and hygienically, without using a heat source -Safely use techniques such as cutting, peeling and grating</p> <p>Linked with Geography and Pumpkin Soup</p>

KS2 - When Designing and making, children should be taught to:

Design	<ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Make	<ul style="list-style-type: none"> 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
Evaluate	<ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world
Technical Knowledge	<ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products
Cooking and nutrition	<ul style="list-style-type: none"> understand and apply the principles of a healthy and varied diet prepare and cook a variety of predominantly savory dishes using a range of cooking techniques understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Years 3 and 4 Cycle A: Years 2019-2020 & 2021-2022

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Autumn term One : Investigate and design Carnival floats. Design, Make, Evaluate, Technical Knowledge Activities: Research Carnivals focussing on the floats - colour/style/theme Generate ideas for an item, make labelled drawings Choose simple techniques to construct products Use appropriate mechanisms for a product (levers) Evaluate finished product against design criteria</p>	<p>Lever, construct, movement, mechanism, measure, assemble, fit for purpose, aesthetic qualities,</p>	<p>Design</p> <ul style="list-style-type: none"> - describe the purpose of their products - gather information about needs and wants of particular individuals and groups - develop their own design criteria and use these to inform their ideas - use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas <p>Linked to English and Geography - learning about Caribbean culture</p> <p>Make</p> <ul style="list-style-type: none"> - select tools and equipment suitable for the task - explain their choice of tools and equipment in relation to the skills and techniques they will be using - select materials and components suitable for the task - explain their choice of materials and components according to functional properties and aesthetic qualities - measure, mark out, cut and shape materials and components with some accuracy - assemble, join and combine materials and components with some accuracy - apply a range of finishing techniques, including those from art and design, with some accuracy <p>Evaluate</p> <ul style="list-style-type: none"> - identify the strengths and areas for development in their ideas and products - consider the views of others, including intended users, to improve their work - refer to their design criteria as they design and make - use their design criteria to evaluate their completed products <p>Technical Knowledge</p> <ul style="list-style-type: none"> - use learning from science and maths to help design and make products that work - know that materials have both functional properties and aesthetic qualities - know that mechanical systems have an input, process and output - know how mechanical systems such as levers create movement

Years 3 and 4 Cycle A: Years 2019-2020 & 2021-2022

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Spring term One : Design and make a chocolate bar wrapper and a chocolate bar</p> <p>-Design, Make, Evaluate, Cooking and Nutrition</p> <p>Activities Research established products - features of their designs Research product placement/target audience/ingredients Create detailed sketches and technical drawings, evaluating designs Produce a final design using Technology (Paint) Research flavours/tastes and link these to the product name eg: a clouds chocolate bar may contain marshmallows Understand the need to prepare ingredients hygienically using appropriate utensils Evaluate products against original designs</p>	<p>Mix, combine, Measure, assemble, fit for purpose, aesthetics</p>	<p><u>Cooking and nutrition</u> -Understand and know where and how ingredients are grown and processed. (Linked to English - learning about the cocoa bean) - Know that a healthy diet is made up from a variety and balance of different food and drink</p> <p><u>Design</u> -gather information about needs and wants of particular individuals and groups - model their ideas using prototypes -develop their own design criteria and use these to inform their ideas - use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas - use computer-aided design to develop and communicate their ideas (Linked to Computing - using the draw package to create an image with a purpose)</p> <p><u>Make</u> - follow procedures for safety and hygiene - order the main stages of making - apply a range of finishing techniques, including those from art and design, with some accuracy</p> <p><u>Evaluate</u> - disassemble and evaluate familiar products. -investigate and analyse how well products have been designed and made - refer to their design criteria as they design and make - consider the views of others, including intended users, to improve their work - refer to their design criteria as they design and make -investigate and analyse existing products that have been designed and made</p>

Years 3 and 4 Cycle B: Years 2020-2021 & 2022-2023

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Spring Term One : Design and make a dragon snack. Design a dragon head with a pneumatic mechanism. -Design, Make, Evaluate, Technical Knowledge Activities Research established products - features of their designs Research moving devices in simple toys, Research product placement/target audience/ingredients Create detailed sketches and technical drawings Measure, mark out, cut and shape materials and components with some accuracy Assemble, join and combine materials and components with some accuracy Use appropriate mechanisms for a product (pneumatics) Apply a range of finishing techniques, including those from art and design, with some accuracy Evaluate their design and it's suitability to be fit for purpose</p>	<p>Purpose, cut and score, process, prototype, measure, assemble, create, mark out, combine, pneumatics</p>	<p>Design - indicate the design features that will appeal to intended users - gather information about needs and wants of particular individuals and groups - develop their own design criteria and use these to inform their ideas - model their ideas using prototypes - use sketches, cross-sectional drawings and diagrams to develop and communicate their ideas Make - select tools and equipment suitable for the task - explain their choice of tools and equipment in relation to skills and techniques -select materials and components suitable for the task - explain their choice of materials and components according to functional properties and aesthetic qualities - order the main stages of making - measure, mark out, cut and shape materials and components with some accuracy (Linked to maths - measuring with accuracy) - assemble, join and combine materials and components with some accuracy - apply a range of finishing techniques, including those from art and design, with some accuracy Evaluate - refer to their design criteria as they design and make -Use their design criteria to evaluate their completed products -investigate and analyse how well existing products have been designed and made -investigate and analyse what methods of construction have been used in existing products Technical Knowledge - how to use learning from science /maths to help design and make products that work - know that mechanical systems have an input, process and output - how mechanical systems such as pneumatic systems create movement</p>
<p>Spring Term Two : Design and make a Roman Villa -Design, Make, Evaluate, Technical Knowledge Activities Look at images of Roman Villas, their shape (floor plan), design, materials and size Create detailed drawings and plans Consider materials that could be used to create a scaled down model and identifying features their design should include eg: Roman columns Consider methods to strengthen structures Construct a model based on design planning Evaluate final design against criteria and consider how work could be improved</p>	<p>Measure, mark out, score, shape, assemble, strengthen, fold,</p>	<p>Design - develop their own design criteria and use these to inform their ideas - share and clarify ideas through discussion - use cross-sectional drawings and exploded diagrams to develop and communicate their ideas - Make design decisions that take account of the availability of resources Make - select tools and equipment suitable for the task - explain their choice of tools and equipment in relation to the skills and techniques they will be using -select materials and components suitable for the task and order stages of making - explain their choice of materials and components according to functional properties and aesthetic qualities - measure, mark out, cut and shape materials and components with some accuracy - assemble, join and combine materials and components with some accuracy - apply a range of finishing techniques, with some accuracy Evaluate -Understand how key events and individuals in design and technology have helped shape the world Linked to History - understanding what the Romans did for us Technical knowledge -Know how to make strong, stiff shell structures -Know that materials have both functional properties and aesthetic qualities -Know that materials can be combined and mixed to create more useful characteristics</p>

Years 3 and 4 Cycle B: Years 2020–2021 & 2022–2023

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Summer Term One : Dogger T-shirts (Textiles) Dogger Books (Digital media - completed during English and Computing lessons)</p> <p>Design, Make, Evaluate</p> <p>Activities</p> <p>Research established products - features of their designs Research product placement/target audience/ingredients Create detailed sketches and technical drawings including design boards Measure, mark out, cut and shape textiles Assemble, join and combine materials and components with some accuracy (blanket stitch) Apply a range of finishing techniques, including those from art and design, with some accuracy Evaluate their design and its suitability to be fit for purpose</p> <p>LET'S GET COOKING! After school cookery club offered for Year 3</p>	<p>Stitching, cross stitch, blanket stitch, back stitch, blanket stitch, pattern, illustrate, create</p>	<p>Design</p> <ul style="list-style-type: none"> - gather information about needs and wants of particular individuals and groups - model their ideas using prototypes and pattern pieces - use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas - generate realistic ideas, focusing on the needs of the user <p>Make</p> <ul style="list-style-type: none"> -follow procedures for safety - measure, mark out, cut and shape materials and components with some accuracy - assemble, join and combine materials and components with some accuracy - apply a range of finishing techniques, including those from art and design, with some accuracy <p>Evaluate</p> <ul style="list-style-type: none"> - refer to their design criteria as they design and make -use their design criteria to evaluate their completed products -Investigate and analyse how well existing products have been designed and made <p>Technical knowledge</p> <ul style="list-style-type: none"> -apply their understanding of how to strengthen, stiffen and reinforce - know that materials have both functional properties and aesthetic qualities

Years 5 and 6 Cycle A: Years 2019-2020 & 2021-2022

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Autumn Term One : Bridge Building</p> <p>Activities Learn about bridge types and how they are constructed Use research to develop design criteria Practise making bridge structures which match the criteria. Learn about the use of hydraulics (during visit to Discovery Museum) and pneumatics to add movement (function) to a model bridge. Evaluate building against design criteria and improve work Apply knowledge about materials and structure shape to strengthen, stiffen and reinforce complex structures.</p>	<p>Beam, truss, suspension, pillar, load, arch bridges, test, engineer, criteria, self-evaluation, procedures,</p> <p>Design initial ideas, criteria, diagrams, labels, annotate, brief, product, audience, application, constraints</p> <p>Making and Technical Knowledge adhesive</p> <p>Evaluate Assess, edit, outcome, develop, test, criteria, alternatives, models, quality, function, functionality</p>	<p>Design Research /develop design criteria to inform innovative, functional products -Generate ideas through group discussion and identify a purpose for their product. (Y5) -Draw up a specification for their design. (Y5) -Identify a purpose and have a clear plan of how to create the product, which materials to use and the process. (Y5) -Suggest alternative methods of making if the first attempts fail. (Y5) -Communicate detailed ideas through labelled drawings. (Y6) -Develop a specification for their design by modelling proposals in a variety of ways(Y6) -Plan the order of their work carefully, choosing appropriate materials. (Y6) -Suggest alternative methods of making if the first attempts fail. (Y6)</p> <p>Make -Select appropriate materials, tools, components and techniques. (Y5/6) -Measure and mark out accurately. (Y5) -Assemble components accurately to make working models. (Y6) -Construct products using permanent joining techniques and test these to last. (Y6) -Anticipate issues and make modifications as they go along. (Y6)</p> <p>Evaluate -Evaluate own ideas against own design criteria and consider the views of other to improve their work -Evaluate a product against the original design specification. (Y5) -Evaluate it personally and seek evaluation from others. (Y5) -Evaluate their products identifying strengths/areas for development, and carrying out appropriate tests. (Y6) -Record their evaluations using drawings with labels. (Y6) -Evaluate against their original design criteria and suggest ways that their product could be improved. (Y6)</p> <p>Technical Knowledge -Apply understanding of how to strengthen, stiffen and reinforce complex structures. -Know how mechanical systems such as cams or pulleys or gears create movement (pneumatics and hydraulics) -Know how to reinforce and strengthen a 3D framework</p> <p>Link to History (Famous inventors) and Art (famous architects) (Parental engagement - invited to come and help make bridges with children.)</p>
<p>Spring Term One : Sewing - Making a swag bag</p> <p>Activities Research established products - features of a range of bags Research and develop design criteria to inform the design of innovative, functional and appealing products, creating detailed sketches/technical drawings Make a paper prototype based on a design Select from and use a wider range of tools and equipment to perform practical tasks, accurately Select from and use a wider range of materials and components (fastenings) Select from a wider range of textiles and stitching techniques. Complete some testing of bag strength Evaluate own ideas against their own design criteria and consider the views of other to improve their work</p> <p>Link to Art curriculum -Join fabric in different ways. -Choose from a range of stitching techniques.</p>	<p>Fibres, man-made, natural, back stitch, blanket stitch, chain stitch, stem stitch, self-evaluation, criteria, products</p> <p>Design Organise, initial ideas, criteria, diagrams, labels, annotate, product, purpose,</p> <p>Making and Technical Knowledge dimensions, durable</p> <p>Evaluate Assess, edit, outcome, develop, test, analyse, criteria, alternatives, quality</p>	<p>Design -Draw up a specification for their design. (Y5) -Identify a purpose/ clear plan to create the product, the materials to use and the process. (Y5) -Use results of investigations, information sources including ICT when developing design ideas. (Y5) -Communicate detailed ideas through labelled drawings. (Y6) -Develop a specification for their design by modelling proposals in a variety of ways(Y6) -Plan the order of their work carefully, choosing appropriate materials. (Y6)</p> <p>Make -Measure and mark out accurately. (Y5) -Construct products using permanent joining techniques and test these to last. (Y6) -Anticipate issues and make modifications as they go along. (Y6) -Pin, sew and stitch materials together to create a product. (Y6) -Achieve a quality, long-lasting product. (Y6)</p> <p>Evaluate -Evaluate a product against the original design specification. (Y5) -Evaluate it personally and seek evaluation from others. (Y5) -Evaluate against their original design criteria and suggest ways that their product could be improved. (Y6)</p>

Years 5 and 6 Cycle A: Years 2019-2020 & 2021-2022

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Spring Term One—Summer Term One (Year 5) Robotics or Construction</p> <p>Planned and delivered by Tanfield School Transition visits to Comp (Y5)</p> <p>Additional offer: Robotics Club Cultural capital – 1st Lego League tournament (Y6)</p>	<p>Debug, code, test, algorithm, output device, input, output, sequence (see Computing), criteria, self-evaluation, purpose, objectives</p> <p>Making and Technical Knowledge program, switches, motors</p> <p>Evaluate Assess, edit, outcome, develop, test, analyse,</p>	<p>Design -Generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes. -Suggest alternative methods (of making) if the first attempts fail. (Y5) -Suggest alternative methods of making if the first attempts fail. (Y6)</p> <p>Make -Anticipate issues and make modifications as they go along. (Y6)</p> <p>Evaluate -Evaluate own ideas against their own design criteria and consider the views of other to improve their work -Evaluate their products identifying strengths and areas for development, and carrying out appropriate tests. (Y6)</p> <p>Technical knowledge <i>Robotics: Understand use of mechanical systems, gears, sensors, motors, levers, electrical systems (switches, motors)</i> <i>Link to Computing - Apply their understanding of computing to program, monitor and control their products</i> -Know how more complex electrical circuits and components can be used to create functional products -Know how to program a computer to monitor changes in the environment and control their products</p>
<p>Summer Term Two : Which sort of light will work for you? (STEM project)</p> <p>Activities Investigate light sources and their different power sources, weigh up pros and cons of each Investigate a range of lights and torches, how they are made and stating their purposes Revise and make circuits and switches Create a set of design criteria in the context of the Computing project Construct a torch/light source Style the construction to fit a designed theme and /or purpose Evaluate the product and test for lasting quality</p>	<p>Design Initial ideas, criteria, diagrams, labels, annotate, brief, product, target audience, purpose, constraints,</p> <p>Make Materials, form, adhesive, dimensions, durable, series circuits, switches, bulbs,</p> <p>Evaluate Assess, edit, outcome, develop, test, analyse, effective, criteria, models, quality, function, functionality</p>	<p>Design -Identify a purpose and have a clear plan of how to create the product, which materials to use and the process. (Y5) -Suggest alternative methods of making if the first attempts fail. (Y5) -Communicate detailed ideas through labelled drawings. (Y6) -Plan the order of their work carefully, choosing appropriate materials. (Y6) -Suggest alternative methods of making if the first attempts fail. (Y6)</p> <p>Make -Measure and mark out accurately. (Y5) -Use skills in using different tools and equipment safely and accurately. (Y5) -Select appropriate materials, tools, components and techniques. (Y6) -Assemble components accurately to make working models. (Y6) -Use tools safely and accurately. (Y6) -Construct products using permanent joining techniques and test these to last. (Y6) -Anticipate issues and make modifications as they go along. (Y6)</p> <p>Evaluate -Evaluate a product against the original design specification. (Y5) -Evaluate it personally and seek evaluation from others. (Y5) -Evaluate their products identifying strengths and areas for development, and carrying out appropriate tests. (Y6)</p> <p>Technical Knowledge -Know how more complex electrical circuits and components can be used to create functional products</p> <p>Cross Curricular Links <i>Science - Changing Circuits- making lights brighter or dimmer. Electrical circuits - fault finding in circuits, or torches, and trying to devise a checking system to find the fault.</i> <i>Computing - Application of skills - Collaborative group project. Designing and promoting a bedroom.</i></p>

Years 5 and 6 Cycle B: Years 2020-2021 & 2022-2023

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Autumn Term Two: Food-Super Seasonal Cooking (Twinkl adapted to autumn)</p> <p>Activities Understand seasonality, and know where and how a variety of ingredients are grown etc. Look at a Seasonal Calendar, Research different Reared, Caught and Processed Foods, Taste Seasonal Food, vegetables and protein Understand and apply the principles of a healthy and varied diet, Research plate proportions and protein, Design a Seasonal Meal Prepare and cook a variety of savoury dishes using a range of cooking techniques in the context of preparing and cooking a healthy seasonal meal. Evaluate their products against their own design criteria in the context of evaluating their seasonal meal. Take feedback and improve designs.</p>	<p>Savoury, protein, carbohydrates, dairy, calories, proportion, fat</p> <p>Cooking and Nutrition Balanced, vitamins, disease, nutrition, healthy eating, hygiene, diet, cross contamination, grams, storage, presentation, taste, texture, flavour, disinfect, bacteria</p> <p>Design Organise, prototype, initial ideas, criteria, diagrams, labels, annotate, brief, consumer,</p> <p>Evaluate Assess, edit</p>	<p>Cooking and nutrition -Know that seasons may affect the food available -Know how food is processed into ingredients that can be eaten or used in cooking -Know that different food and drink contain different substances - nutrients, water and fibre - that are needed for health -Know 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 -Prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source -Uses a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p> <p>Design -Generate ideas through group discussion and identify a purpose for their product. (Y5) -Draw up a specification for their design. (Y5) -Plan the order of their work carefully, choosing appropriate materials. (Y6)</p> <p>Make -Select appropriate materials, tools and techniques. (Y5) -Measure (and mark out) accurately. (Y5) -Use skills in using different (tools and) equipment safely (and accurately). (Y5)</p> <p>Evaluate and Improve -Evaluate it personally and seek evaluation from others. (Y5) -Evaluate against their original design criteria and suggest ways that their product could be improved. (Y6)</p>
<p>Spring One—Summer One (Year 5) Robotics or Construction Planned and delivered by Tanfield School Transition visits to Comp (Y5)</p> <p>Additional offer: Robotics Club Cultural capital - 1st Lego League tournament (Y6)</p>	<p>Debug, code, test, algorithm, output device, input, output, sequence (see Computing), criteria, self-evaluation, purpose, objectives</p> <p>Making and Technical Knowledge program, switches, motors</p> <p>Evaluate Assess, edit, outcome, develop, test, analyse</p>	<p>Design Generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes. -Suggest alternative methods (of making) if the first attempts fail. (Y5) -Suggest alternative methods of making if the first attempts fail. (Y6)</p> <p>Make -Anticipate issues and make modifications as they go along. (Y6)</p> <p>Evaluate -Evaluate own ideas against their own design criteria and consider the views of other to improve their work -Evaluate their products identifying strengths and areas for development, and carrying out appropriate tests. (Y6)</p> <p>Technical Knowledge Link to Computing - Apply their understanding of computing to program, monitor and control their products Robotics: Understand use of mechanical systems, gears, sensors, motors, levers, electrical systems (switches, motors) -Know how more complex electrical circuits and components can be used to create functional products -Know how to program a computer to monitor changes in the environment and control their products</p>

Years 5 and 6 Cycle B: Years 2020-2021 & 2022-2023

Topic	Key Vocabulary	Key Knowledge/ Skills
<p>Summer Term One : Moving Toys Automata Animals (Twinkl) Activities Research ideas about different animals to inform my design. Gather ideas and explain how they move and their appearance to inform my design. Identify and explain what a cam and follower are. Select materials according to their functional properties. Make a mechanism and change the shape of the cam to see how this changes the movement of the follower, choosing appropriate sheet materials which are fit for purpose. Use research to develop and explain what design criteria are and use the acronym CAFEQUES to help develop an innovative design. Build a framework accurately using a wider range of tools and equipment. Select from a wider range of materials to perform practical tasks (cutting, shaping, joining and finishing) Evaluate the product against design criteria and the views of others as well as make adjustments to the mechanical system to make it function well.</p>	<p>Mechanical systems, mechanism, gears, pulleys, cams, precision, sanding, joints, vice, bench hooks, junior hacksaw Design Organise, initial ideas, criteria, diagrams, labels, annotate, brief, product, consumer, customer, target audience, purpose, application, constraints, client Making and Technical Knowledge mould, form, adhesive, lattice, mass-produce, hand-made, packaging presentation, machine made, dimensions, durable, gears, pulleys, cams, levers, linkages, series circuits, program, switches, bulbs, buzzers, motors Evaluate Assess, edit, outcome, develop, test, analyse, effective, fit for purpose, criteria, alternatives, models, quality, function, functionality</p>	<p>Design -Generate ideas through group discussion and identify a purpose for their product. (Y5) -Draw up a specification for their design. (Y5) -Identify a purpose and have a clear plan of how to create the product, which materials to use and the process. (Y5) -Suggest alternative methods of making if the first attempts fail. (Y5) -Use results of investigations, information sources including ICT when developing design ideas. (Y5) -Communicate detailed ideas through labelled drawings. (Y6) -Plan the order of their work carefully, choosing appropriate materials. (Y6) -Suggest alternative methods of making if the first attempts fail. (Y6) Make -Select appropriate materials, tools, components and techniques. (Y5/6) -Measure and mark out accurately. (Y5) -Use skills in using different tools and equipment safely and accurately. (Y5/6) -Assemble components accurately to make working models. (Y6) -Construct products using permanent joining techniques and test these to last. (Y6) -Anticipate issues and make modifications as they go along. (Y6) Evaluate -Evaluate a product against the original design specification. (Y5) -Evaluate it personally and seek evaluation from others. (Y5) -Evaluate their products identifying strengths and areas for development, and carrying out appropriate tests. (Y6) -Record their evaluations using drawings with labels. (Y6) -Evaluate against their original design criteria and suggest ways that their product could be improved. (Y6) Technical knowledge -Understand and use mechanical systems in their products -Know how mechanical systems such as cams or pulleys or gears create movement</p>