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| A picture containing icon  Description automatically generated  **Hennock Community Primary School**  **Design Technology Curriculum**  Our Curriculum statements are designed to be used as a supportive tool to plan teaching and learning across our school. The key skills are derived from the National Curriculum and spilt into individual year groups to support a progressive approach and mixed age classes. |
| The concept of future and innovation underpins our design and technology curriculum - we want pupils to view themselves as designers: risk taking, trialling, and evaluating sitting centrally to their experience.  Pupils are encouraged to exercise their creativity through our designing, making and evaluating cycle. Combining designing and making skills, with knowledge and understanding ensures pupils have a rounded, progressive experience and provides skills that can be drawn upon for life.  Evaluation is an integral part of the design process, allowing children to improve and adapt their product and providing a platform to build and practice resilience. Capturing pupil interests and providing cross-curricular opportunities to embed D&T develops motivation and embeds understanding in a meaningful way. |
| **Vocabulary**  Children’s command of vocabulary is fundamental to learning and progress across the curriculum. Vocabulary is developed actively, building systematically on pupil’s current knowledge and deepening their understanding of etymology and morphology (word origins and structures) to increase their store of words. Simultaneously, pupils make links between known and new vocabulary, and discuss and apply shades of meaning. In this way, children expand the vocabulary choices that are available to them. It is essential to introduce technical vocabulary which define each curriculum subject. Vocabulary development is underpinned by an oracy culture and a tiered approach. High value is placed on the conscious, purposeful selection of well-chosen vocabulary and appropriate sentence structure to enrich access to learning and feed into written work across the curriculum. |
| **KS1 D&T Vocabulary List**   |  |  |  | | --- | --- | --- | | Design | Assemble, join & combine | Hygiene/hygienically | | Product | Food plant names | Intended user | | Idea | Animals that produce/give food | Measure, mark out | | Template | Names of different food ingredients | Mock-up | | Labelled diagrams | Structures | Finishing techniques | | Names of different materials & textiles | Names of tools for cutting, peeling and grating | Slider, lever, hinge | | Eatwell Plate –  fruit and vegetables, potatoes, bread, rice, pasta and other starchy carbohydrates, beans, pulses, fish, eggs, meat and other proteins, dairy and alternatives, oils and spreads | | Wheel, axel & chassis |   **KS2 D&T Vocabulary List**   |  |  |  | | --- | --- | --- | | Purpose | Levers and linkages | Electrical circuits, switches, buzzers | | Design features | Pneumatic systems | Programming | | Intended users | Movement | Structures: Reinforce and strengthen, stronger, stiffer and steadier. | | Prototype | Healthy diet | Computer aided programmes: program, monitor and control | | Mock-up | Cross-sectional drawing | Complex electrical circuits | | Pattern piece | Cams, pulleys, gears | Motor, battery | | Annotated sketches & diagrams | Recycled | Conductor, insulator | | Design criteria | Reused | Crocodile clips | | Components | Exploded diagram |  |   Design and Technology taught at Hennock ensures pupils learn through a variety of creative and practical activities. Across school, DT is taught in blocks throughout the year. We believe knowledge, understanding and skills are needed to engage children in an iterative process of designing and making. We encourage children through linking projects to topic work in order to learn new skills, apply and build on knowledge learnt throughout their time in school.  The teaching of DT follows the design, make and evaluate cycle. Each stage is rooted in technical knowledge and vocabulary. The design process should be rooted in real life, relevant contexts to give meaning to learning. While making, children will be given choices and a range of tools to choose freely from. Children should be able to evaluate their own products against design criteria.  Design & Technology - The Greetland Academy |
| **The National Curriculum** |
| **Key stage 1**  Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].  When designing and making, pupils should be taught to:  **Design**   * design purposeful, functional, appealing products for themselves and other users based on design criteria * generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology   **Make**   * 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 * explore and evaluate a range of existing products * evaluate their ideas and products against design criteria   **Technical knowledge**   * build structures, exploring how they can be made stronger, stiffer and more stable * explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.   **Key stage 2**  Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].  When designing and making, pupils should be taught to:  **Design**   * use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups * generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design   **Make**   * 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**   * investigate and analyse a range of existing products * evaluate their ideas and products against their own design criteria and consider the views of others to improve their work * understand how key events and individuals in design and technology have helped shape the world   **Technical knowledge**   * apply their understanding of how to strengthen, stiffen and reinforce more complex structures * understand and use mechanical systems in their products [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**  As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.  **Pupils should be taught to:**  **Key stage 1**  - use the basic principles of a healthy and varied diet to prepare dishes  - understand where food comes from.  **Key stage 2**  - understand and apply the principles of a healthy and varied diet  - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques  - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. |
| |  | | --- | | **Progression of Key Skills** | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Strand** | **Year 1** | | | | | **Year 2** | **Year 3** | | **Year 4** | | **Year 5** | | | **Year 6** | | | **Design** | | **Design purposeful, functional, appealing products for themselves and other users based on design criteria.**  **Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.** | | | | | **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.** | | | | | | | | | | Can I use my senses to explore a wide range of familiar products?  Can I take products apart and talk about the parts and how they work?  Can I talk about and/or use words and pictures to plan my design?  Can I talk about what I am doing/making? | | Can I use knowledge of existing products to support my plan for a similar product?  Can I include some knowledge of materials and techniques in my design?  Can I explore and investigate products I have disassembled?  Can I use construction kits, pictures and captions to plan my design?  Can I talk about and describe the tools and materials I need and order the key tasks within my plan? | | | Can I generate, develop and explain ideas for products to meet the needs of a specific audience?  Can I choose appropriate tools and techniques based on those shown?  Can I dissemble and investigate everyday products to see how they are fit for purpose?  Can I communicate design ideas in different ways (eg verbally, written, in a labelled diagram)  Can I plan what I am going to do next based on how my product is developing? | | Can I use my knowledge of a range of products to inform my plans and designs?  Can I include a range of suitable materials and options in my plans and designs and suggest alternative ways to make their product?  Can I talk about and disassemble products and describe their function?  Can I use prototypes, labelled sketches and instructions in my plans and designs?  Can I talk in depth about my ideas, plans and reasons for choices? | | | Can I generate plans and designs based on ideas and information that takes account of the users’ views and the intended purpose?  Can I look at mechanical products to see how they function and meet the user’s needs?  Can I consider safety and reliability when planning my product?  Can I use simple prototypes to test ideas?  Can I plan what to do next, suggesting a detailed sequence of actions and alternatives if needed? | | Can I generate ideas by collecting and using information, from a number of sources, including ICT based sources?  Can I produce detailed designs and plans using prototypes, commentary and diagrams that include measurements and are drawn from different view points?  Can I investigate, disassemble and evaluate a range of products and describe in detail their parts and their function?  Can I clarify my ideas through discussion, drawing upon and using a range of sources of information?  Can I use detailed plans from different views?  Can I modify my plans effectively? | | | **Make** | | **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.** | | | | | **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.** | | | | | | | | | | Can I use simple tools and materials with support, eg. scissors to cut paper?  Can I use my senses to explore and talk about materials?  Can I join with tape or glue?  Can I cut paper/card using scissors?  Can I roll paper and card to form a tube?  Can I add paper and card shapes to products? | | Can I use simple tools to cut and join a range of materials, eg. scissors, stapler, masking tape?  Can I use a range of simple ways to improve the appearance of my product?  Can I join by edge to edge using glue?  Can I curl paper?  Can I use a hole punch? | | | Can I select the appropriate tool to cut or join a range of materials?  Can I use tools and equipment to measure, mark out and shape materials and components?  Can I select an appropriate way to improve the appearance of my product?  Can I make gluing tabs?  Can I insert paper fasteners for card linkages?  Can I use a hack saw and bench hook?  Can I make simple paper models, mock-ups and templates? | | Can I select a range of appropriate tools to cut or join materials?  Can I use tools and equipment to measure, mark out and shape materials and components with greater accuracy and control?  Can I produce a well-finished product that fulfils the function it is designed for?  Can I join and combine materials in permanent and temporary ways?  Can I use a G clamp?  Can I make increasingly complex mock-ups and templates? | | Can I select a range of appropriate tools to cut or join materials with accuracy and precision?  Can I use a range of tools and equipment to measure, mark out and shape materials and components accurately?  Can I identify and apply an appropriate finishing technique to ensure a high quality end product?  Can I join and combine a range of materials in permanent and temporary ways?  Can I use a drill to make an off-centre hole?  Can I make complex mock-ups and templates? | | Can I select a range of appropriate tools to cut or join materials with accuracy and precision?  Can I use a range of tools and equipment to measure, mark out and shape materials and components accurately?  Can I use a variety of finishing techniques eg. collage, paint, embroidery and embellishments?  Can I use appropriate finishing techniques to strengthen and improve the appearance, using a range of equipment and ICT  to make a product which is finished to a high standard, using the appropriate tools and following a detailed plan? | | | | **Evaluate** | | **Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.** | | | | | **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.** | | | | | | | | | | Can I use my senses to explore a wide range of familiar products?  Can I talk about familiar products and what they do?  Can I talk about what I am making and what I have done? | | Can I talk about and describe features of existing products?  Can I talk about what I am doing and what I might do next?  Can I suggest ways in which I could improve my work? | | | Can I use my knowledge of common products, their characteristics and properties to support my work?  Can I talk about how the changes I have made have improved by product?  Can I identify the ways in which my product meets my design plan? | | Can I identify the ways in which I have used my knowledge of products and materials to inform my work?  Can I take the function of the product into account when planning?  Can I identify the parts of my project that are progressing well and parts that could be improved?  Can I identify where evaluation has led to improvements? | | Can I test and evaluate products to identify the variants which may affect the function of my product?  Can I check my work as it develops and modify may plans if any changes are made?  Can I take into account the original criteria when evaluating my product?  Can I reflect on my progress and identify ways?  Can I improve my product? | | Can I carry out appropriate tests before making any improvements, including testing and evaluating products and information sources?  Can I give reasons for the success of aspects of my project and provide considered solutions to resolve those parts that could be improved?  Can I take into account the original criteria when evaluating my product? | | | | **Electrical and Mechanical Components** | | Can I use my senses to explore battery powered toys, eg, cars, trains, tills etc?  Can I talk about electrical equipment in my home, eg, kettle, telephone, and microwave?  Can I explore the use of bulbs, wires and batteries? | | Can I talk about how common electrical equipment works, eg, kettle, telephone, and microwave?  Can I create a simple circuit using a battery, bulb and wires?  Can I use remote controlled devices, eg, a remote controlled vehicle, Bee bot etc? | | | **Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]** | | | | | | | | | | Can I describe how a simple battery powered circuit can be controlled by different kinds of switches?  Can I create simple circuits incorporating a battery, bulb, switch and wires?  Can I talk about simple electrical safety?  Can I explore and describe how an electric motor can be used in a circuit?  Can I use a remote-controlled device to switch lights on and off?  Can I explore and describe materials that can be used to conduct electricity?  Can I explore and explain how the direction and speed of an electrical motor can be controlled?  Can I explore and program a simple control device? | | | | | Can I explore and describe how electrical circuits with switches can be used?  Can I use switches in a range of circuits to control components, eg, lights in a lighthouse, a movement sensor in a burglar alarm?  Can I use my knowledge of conductors and insulators when constructing circuits?  Can I talk in depth about the hazard and safety issues associated with electricity?  Can I apply appropriate safety measures when constructing circuits?  Can I talk about how electricity can be used to control movement?  Can I explore and use a complex control system, eg, a light sensor? | | | | | **Food Technology** | | **Use the basic principles of a healthy and varied diet to prepare dishes?**  **Understand where food comes from?** | | | | | | | **Understand and apply the principles of a healthy and varied diet? Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques? Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed?** | | | | | | | | Can I sort fruit and vegetables by taste, shape, size, colour and texture?  Can I sort food into groups, eg, fruit, vegetable, meat etc?  Can I use basic tools to cut, shape and mix, eg, cutters and whisks?  Can I understand where a few of the food I am cooking comes from? | | Can I work safely and hygienically?  Can I sort and classify food into food groups, eg, vegetables, pulses, cereals, dairy etc?  Can I measure and weigh accurately using cups and spoons?  Can I talk about what happens when I cook and bake?  Can I understand what makes a healthy diet?  Can I talk about where some of the food I am cooking comes from? | | | Can I talk about what needs to be done in order to work safely and hygienically?  Can I use simple tools eg, hand whisk, rolling pins?  Can I sort and classify food according to specific food groups, eg, proteins, carbohydrates, fats etc?  Can I measure and weigh using standard units and scales?  Can I talk about the way in which food processing can affect the taste, appearance, texture and colour of food?  Can I understand what makes a varied and healthy diet?  Can I talk about where the food I am cooking comes from? | | Can I talk about why we need to work safely and hygienically?  Can I talk about the characteristics of a range of food and ingredients and where the foods come from?  Can I use my knowledge of food and cooking to start generate my own recipes?  Can I talk in simple terms about the physical and chemical (observational skills)?  Can I understand how some of the ingredients are grown, reared, caught and processed? | | Can I apply the rules for basic food hygiene and other safe practices eg, hazards relating to the use of ovens?  Can I talk in detail about the characteristics of a range of food and ingredients and where the food comes from?  Can I talk about the impact of changing proportions within a recipe?  Can I talk in scientific terms about the physical and chemical changes that take place when food is cooked?  Can I understand how a variety of the ingredients are grown, reared, caught and processed? | | | Can I understand the practice needed in terms of food hygiene and kitchen safety?  Can I talk about how the properties of certain foods can affect the final product?  Can I choose the appropriate methods and equipment for measuring, eg, time, dry goods, liquids etc?  Can I compare and evaluate several ideas in order to draw up a design specification?  Can I compare commercial and domestic processes for producing food, eg, bread?  Can I understand how most of ingredients are grown, reared, caught and processed?  Can I understand seasonality? | | | **Mechanisms. Axles, Pulleys and Gears** | | | **Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.** | | | | | **Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].** | | | | | |  | | Can I explore and talk about books containing moving pictures?  Can I construct a simple slider with support?  Can I construct a simple lever with support?  Can I explore and use construction kits containing gears? | | Can I deconstruct a simple slider and describe how it works?  Can I construct a simple slider independently?  Can I make a lever by joining card strips with paper fasteners?  Can I attach wheels to a chassis using an axle, eg, cotton reels and dowel?  Can I use pencils or tubes as rollers to move an object across the floor?  Can I construct a simple pulley using rope over a horizontal bar to raise an object off the ground?  Can I use construction kits with gears to construct a line of gears that turn? | | | Can I deconstruct and reconstruct sliders and levers?  Can I join levers to make linkages to create moving parts?  Can I vary the position of the pivot point to lift a load using a lever?  Can I construct a simple pneumatic system with one moving part?  Can I identify the cam within a simple mechanism and explain how movement is changed?  Can I construct boxes of different sizes from a net?  Can I attach a fixed axle to a chassis and add wheels ensuring that they can move freely?  Can I construct a pulley that allows a load to travel horizontally along a rope?  Can I use construction kits with gears to mesh gears at right angles? | | Can I create a range of sliders and levers to produce horizontal and vertical movement?  Can I combine sliders and levers to produce a range of movements?  Can I construct a pneumatic with two moving parts?  Can I describe the way in which a cam changes rotary motion into linear motion?  Can I use a range of different ways to attach an axle to a chassis, eg, card triangles, drilled holes, cable clips and clothes pegs?  Can I identify and describe products that contain pulleys and drive belts? | Can I choose and use a range of sliders and levers accurately to create a range of effects?  Can I use simple mechanisms eg, pulleys, gears, cams, cogs?  Can I attach to motors for electrical control?  Can I use the computer to operate switch and devise simple programmes to control own models?  Can I describe in detail the way in which an axle and chassis help a vehicle to move?  Can I talk about how pulleys and drive systems can be driven by motor and computer? | | | Can I use a range of technical vocabulary to describe the properties and functions of mechanisms?  Can I generate questions to investigate?  Can I talk about the relationship between a cam and follower, an off-centre cam, a peg cam, a pear-shaped cam and a snail cam?  Can I design and build a working model where the direction of movement can be controlled, eg. with a chassis with a pivoting axle?  Can I understand how a belt and pulley system can be used to reverse the direction of rotation, and alter the plane of rotation by 90 degrees?  Can I explain how the number of teeth of a gear affects the speed of rotation? | | **Structures** | | | Can I explore and investigate a range of simple, large scale construction materials, eg, cardboard boxes?  Can I build buildings, bridges and towers using small-scale construction materials, eg, Duplo?  Can I make simple 3D structures using straws? | | Can I construct a range of structures using simple construction kits?  Can I make my structures more stable by widening the base?  Can I make a square frame from strip wood?  Can I make a simple card hinge? | | | **Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.** | | | | | | | | Can I deconstruct and assemble the net of basic 3D shapes?  Can I measure and cut dowel accurately?  Can I use a range of materials to make simple joints, glue, tape and paper clips?  Can I make a rectangular frame from strip wood?  Can I strengthen 2D frames by adding diagonal bracing struts? | | Can I create nets of increasingly complex 3D shapes which include the addition of gluing tabs?  Can I use a range of materials to make joints including, card strips, elastic bands, thread and ties, and plastic tubing?  Can I reinforce and strengthen 3D framework using the concept of ‘triangulation’?  Can I explain in detail why some structures fail? | Can I construct regular free standing 3D frames?  Can I use techniques for reinforcing and strengthen structures?  Can I use construction kits and building instructions to identify how structures are established and strengthened? | | | Can I create nets and templates accurately in a range of sizes?  Can I use a range of methods to strengthen 3D structures and frames?  Can I build a range of structures using a wide range of effective materials?  Can I investigate measure and record the load tolerance of different structures?  Can I find ways of improving a structures load-bearing capacity? | | **Textiles** | | | Can I sort and group textiles by texture and colour?  Can I cut and stick fabrics together?  Can I apply simple decoration, e.g. fabric crayons, gluing on feathers etc? | | Can I use a simple template?  Can I join fabrics using glue, staples and thread?  Can I decorate fabrics by painting and printing? | | | Can I make and use a simple paper pattern?  Can I cut and join fabrics using running stitch, buttons and bond web?  Can I decorate fabric by applying beads and sequins? | | Can I make and use a paper pattern that includes a seam allowance?  Can I use a wide range of finishing techniques?  Can I use more than one type of stitch to join materials together?  Can I select the most appropriate joining technique? | Can I create my own patterns and templates?  Can I select an appropriate material to create a product?  Can I use a wide range of techniques to add colour, texture and pattern to fabric?  Can I sew using a range of stitches including, backward running stitch and over sewing?  Can I join fabrics in a range of different ways using zips, tie clasp, toggles, press-studs and buttons? | | | Can I create my own patterns and templates that are accurately measured?  Can I use different but appropriate way to join materials, eg, glue, pins, press studs, Velcro, various stitches, buttons etc?  Can I use a sewing machine to join and decorate fabric? | | |
| **Rolling Programme** |
| |  |  |  | | --- | --- | --- | | **EYFS, Year 1 & 2** | | | | **National Curriculum Objectives**  Design   * Design purposeful, functional, appealing products for themselves and other users based on design criteria. * Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.   Make   * 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   * Explore and evaluate a range of existing products. * Evaluate their ideas and products against design criteria.   **Key Skills**  Design   * Can I use my knowledge of existing products and my own experience to help generate my ideas? * Can I design products that have a purpose and are aimed at an intended user? * Can I explain how my products will look and work through talking and simple annotated drawings? * Can I design models using simple computing software? * Can I plan and test ideas using templates and mock-ups? * Can I understand and follow simple design criteria? * Can I work in a range of relevant contexts, for example imaginary, story-based, home, school and the wider environment?   Make   * Can I follow a simple plan or recipe with support? * Can I begin to select from a range of hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer? * Can I select from a range of materials, textiles and components according to their characteristics? * Can I learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures? * Can I use a range of materials and components, including textiles and food ingredients? * Can I measure and mark out with help? * Can I cut, shape and score materials with some accuracy? * Can I assemble, join and combine materials, components or ingredients? * Can I demonstrate how to cut, shape and join fabric to make a simple product? * Can I manipulate fabrics in simple ways to create the desired effect? * Can I use a basic running stich? * Can I cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups? * Can I begin to use simple finishing techniques to improve the appearance of my product, such as adding simple decorations?   Evaluate   * Can I explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations? * Can I explain positives and things to improve for existing products? * Can I explore what materials products are made from? * Can I talk about my design ideas and what I am making? * As I work, can I start to identify strengths and possible changes I might make to refine my existing design? * Can I evaluate my products and ideas against simple design criteria? * Can I start to understand that the iterative process sometimes involves repeating different stages of the process? | | | | **Year A** | | | | **Autumn** | **Spring** | **Summer** | | **Design Technology: Structures** | **Design Technology: Cooking and Nutrition** | **Design Technology: Mechanisms** | | **Curriculum Links: Using appropriate materials to build a house.** | **Curriculum Links:** | **Curriculum Links: Making toys.** | | **Development Matters**   * Explore, use and refine a variety of artistic effects, to express their ideas and feelings. (EAD) * Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD)   **ELGs**   * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) * Share their creations, explaining the process they have used. (EAD) | **Development Matters**   * Explore, use and refine a variety of artistic effects, to express their ideas and feelings. (EAD) * Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD)   **ELGs**   * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) * Share their creations, explaining the process they have used. (EAD) | **Development Matters**   * Explore, use and refine a variety of artistic effects, to express their ideas and feelings. (EAD) * Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD)   **ELGs**   * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) * Share their creations, explaining the process they have used. (EAD) | | **National Curriculum Objectives**   * Build structures, exploring how they can be made stronger, stiffer and more stable.   **Key Skills**   * Can I explore and investigate a range of simple, large scale construction materials e.g. cardboard boxes? * Can I build simple 3D structures using small-scale construction materials? * Can I build simple structures, exploring how they can be made stronger, stiffer and more stable? * Can I make a square frame? * Can I make a simple card hinge? | **National Curriculum Objectives**   * Use the basic principles of a healthy and varied diet to prepare dishes. * Understand where food comes from.   **Key Skills**   * Can I explain where in the world different foods originate from? * Can I understand that all food comes from plants or animals? * Can I understand that food has to be farmed, grown elsewhere (e.g. home) or caught? * Can I name and sort foods into the three food groups? * Can I understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why? * Can I use what I know about a balanced diet to design and prepare dishes? * Can I use basic tools to prepare dishes such as knives, cutters and whisks? * Can I measure and weigh accurately using cups and spoons? * Can I work safely and hygienically? | **National Curriculum Objectives:**   * Explore and use mechanisms (for example, levers and sliders), in their products.   **Key Skills**   * Can I explore and talk about books containing moving pictures? * Can I deconstruct mechanisms and describe how they work? * Can I construct a simple slider? * Can I construct a simple lever? | | **Key Vocabulary:** Construction material, 2D, 3D, build, construct, structure, strong, stable, rigid, frame, hinge. | **Key Vocabulary:** Instructions, healthy, unhealthy, plan, design, make, evaluate, chop, blend, opinion, texture, taste, smell, flavour, safety, hygiene, weigh, diet, fibre, fruit, vegetables, carbohydrates, protein, knife, cutter, whisk. | **Key Vocabulary:**  Investigate, design, make, evaluate, improve, mechanism, product, tools, materials, lever, slider, moving picture. | | **Year B** | | | | **Autumn** | **Spring** | **Summer** | | **Design Technology: Cooking and Nutrition** | **Design Technology: Textiles** | **Design Technology: Mechanisms** | | **Curriculum Links: Animals including humans – health.** | **Curriculum Links: Make a teddy bear coat to go to the Antarctic.** | **Curriculum Links:** | | **Development Matters**   * Explore, use and refine a variety of artistic effects, to express their ideas and feelings. (EAD) * Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD)   **ELGs**   * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) * Share their creations, explaining the process they have used. (EAD) | **Development Matters**   * Explore, use and refine a variety of artistic effects, to express their ideas and feelings. (EAD) * Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD)   **ELGs**   * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) * Share their creations, explaining the process they have used. (EAD) | **Development Matters**   * Explore, use and refine a variety of artistic effects, to express their ideas and feelings. (EAD) * Return to and build on their previous learning, refining ideas and developing their ability to represent them. (EAD)   **ELGs**   * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD) * Share their creations, explaining the process they have used. (EAD) | | **National Curriculum Objectives**   * Use the basic principles of a healthy and varied diet to prepare dishes. * Understand where food comes from.   **Key Skills**   * Can I explain where in the world different foods originate from? * Can I understand that all food comes from plants or animals? * Can I understand that food has to be farmed, grown elsewhere (e.g. home) or caught? * Can I name and sort foods into the three food groups? * Can I understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why? * Can I use what I know about a balanced diet to design and prepare dishes? * Can I use basic tools to prepare dishes such as knives, cutters and whisks? * Can I measure and weigh accurately using cups and spoons? * Can I work safely and hygienically? | **National Curriculum Objectives**   * Select from and use a wide range of materials and components, including textiles, according to their characteristics.   **Key Skills**   * Can I use a simple template? * Can I cut and stick fabrics together? * Can I sew fabrics together using a running stitch? * Can I apply simple decoration e.g. fabric crayons, sticking collage materials, painting, printing etc? * Can I weave materials? | **National Curriculum Objectives**   * Explore and use mechanisms (for example wheels and axles), in their products.   **Key Skills**   * Can I attach wheels to a chassis using an axle e.g. cotton reels and dowel? * Can I construct a simple pulley using rope over a horizontal bar to raise an object off the ground? | | **Key Vocabulary:** Instructions, healthy, unhealthy, plan, design, make, evaluate, chop, blend, opinion, texture, taste, smell, flavour, safety, hygiene, weigh, diet, fibre, fruit, vegetables, carbohydrates, protein, knife, cutter, whisk. | **Key Vocabulary:** Textiles, fabric, weaving, woven, template, sew, stitch, thread, needle, loom, alternate, over, under, decoration, decorative, crayons, apply. | **Key Vocabulary:** Investigate, design, make, evaluate, improve, mechanism, product, tools, materials, wheel, axle, chassis, pulley. | |  | | | |  | | | | **Year 3 & 4** | | | | **National Curriculum Objectives**  Design  Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.  They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].  Children 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.  They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.  Make  Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.  Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.  They 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  Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing  and making.  Children investigate and analyse a range of existing products.  They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.  They understand how key events and individuals in design and technology have helped shape the world.  **Key Skills**  Design   1. identify the design features of their products that will appeal to intended customers; 2. use their knowledge of a broad range of existing products to help generate their ideas; 3. design innovative and appealing products that have a clear purpose and are aimed at a specific user; 4. explain how particular parts of their products work; 5. use annotated sketches and cross-sectional drawings to develop and communicate their ideas; 6. when designing, explore different initial ideas before coming up with a final design; 7. when planning, start to explain their choice of materials and components including function and aesthetics; 8. test ideas out through using prototypes;   **i** use computer-aided design to develop and communicate their ideas;   1. develop and follow simple design criteria;   work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.  Make   1. with growing confidence, carefully select from a range of tools and equipment, explaining their choices; 2. select from a range of materials and components according to their functional properties and aesthetic qualities; 3. place the main stages of making in a systematic order;   Practical skills and techniques   1. learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures; 2. use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components; 3. with growing independence, measure and mark out to the nearest cm and millimetre; 4. cut, shape and score materials with some degree of accuracy; 5. assemble, join and combine material and components with some degree of accuracy; 6. demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; 7. join textiles with an appropriate sewing technique;   begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics  Evaluate   1. explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose; 2. explore what materials/ingredients products are made from and suggest reasons for this; 3. consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product; 4. evaluate their product against their original design criteria;   evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world. | | | | **Year A** | | | | **Autumn** | **Spring** | **Summer** | | **Design Technology: Textiles – Anglo Saxon Weaving** | **Design Technology: Cooking and Nutrition – Design and make a healthy meal for Soup and Puds lunch** | **Design Technology: Strctures Bridges** | | **Curriculum Links: History** | **Curriculum Links: Science Animals including Humans, Maths - Data** | **Curriculum Links: History** | | **National Curriculum Objectives**  To improve their mastery of art and design techniques with a range of materials – textiles.  **Key Skills**   * make and use a paper pattern; * cut and join fabrics using a more than one type of stitch and buttons * use a variety of techniques, e.g. printing, dyeing and sewing to create different fabric decorations; * develop weaving techniques using a variety of materials. | **National Curriculum Objectives**  Children understand and apply the principles of a healthy and varied diet.  They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.  They understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.  **Key Skills**   * start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world; * start to understand seasonality. * explain that a healthy diet is made up of a variety and balance of different food and drink and be able to apply these principles when planning and cooking dishes; * understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body; * understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically; * with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven; * use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking; * prepare ingredients using appropriate cooking utensils; * measure and weigh ingredients to the nearest gram and millilitre; * start to independently follow a recipe   **Design**   1. identify the design features of their products that will appeal to intended customers; 2. when designing, explore different initial ideas before coming up with a final design; 3. use their knowledge of a broad range of existing products to help generate their ideas;   **Make**   1. learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures; 2. with growing independence, measure and mark out to the nearest millimetre;   **Evaluate**   1. explore what materials/ingredients products are made from and suggest reasons for this; 2. evaluate their product against their original design criteria; | **National Curriculum Objectives:**  Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.  **Key Skills**   * understand that materials have both functional properties and aesthetic qualities; * deconstruct and assemble the net of 3D shapes; * use a range of materials to make simple joints e.g. glue, tape, paper clips, card strips, elastic bands, thread and ties, plastic tubing etc; * Strengthen 2D shapes by adding diagonal bracing struts; * Reinforce and strengthen 3D framework using the concept of triangulation; * apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; * explain in detail why some structures fail. | | **Key Vocabulary:**  pattern, shape, stuffing, turn, sew, stitch, thread, needle, textiles, decoration, fabric, weaving, woven, print, dye, material. | **Key Vocabulary:**  seasonal, nutrition, energy, sweet, savoury, hygiene, mash, whisk, crush, grate, cut, knead, bake, ingredients, utensil, grams, millilitres, recipe. | **Key Vocabulary**  functional property, aesthetic quality, deconstruct, assemble, join, bracing strut, reinforce, triangulation. | | **Year B** | | | | **Autumn** | **Spring** | **Summer** | | **Design Technology: Textiles – Cushion cover** | **Design Technology: Design a system using a circuit – electrical components** | **Design Technology: Mechanisms – Pulley to get food to a tree house** | | **Curriculum Links:** | **Curriculum Links:** | **Curriculum Links:** | | **National Curriculum Objectives**  To improve their mastery of art and design techniques with a range of materials – textiles.  **Key Skills**   * make and use a paper pattern; * cut and join fabrics using a more than one type of stitch and buttons * use a variety of techniques, e.g. printing, dyeing and sewing to create different fabric decorations; * develop weaving techniques using a variety of materials | **National Curriculum Objectives**  They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].  They apply their understanding of computing to program, monitor and control their products.  **Key Skills**   * create simple circuits involving a battery, bulb, switch and wires; * explore and describe how an electric motor can be used in a circuit; * explore and program a simple control device; * make and represent simple electrical circuits, such as a series and parallel, and components to create functional products; * talk about some electrical safety; * understand and demonstrate how mechanical and electrical systems have an input and output process. | **National Curriculum Objectives**  Children understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].  **Key Skills**   * deconstruct and reconstruct sliders and levers; * create a range of sliders and levers to produce horizontal and vertical movement, including combining them; * join levers to make linkages to create moving parts; * vary the position of the pivot point to lift a load using a lever; * construct a simple pneumatic system with at least one moving part; * identify the cam within a simple mechanism and explain how movement is changed; * use a range of different ways to attach an axle to a chassis and add wheels, ensuring they can move freely e.g. card triangles, drilled holes, cable clips and clothes pegs; * construct a pulley that allows a load to travel horizontally along a rope. | | **Key Vocabulary:**  pattern, shape, stuffing, turn, sew, stitch, thread, needle, textiles, decoration, fabric, weaving, woven, print, dye, material. | **Key Vocabulary:**  circuit, battery, bulb, switch, wire, motor, program, series, parallel, mechanical system, electrical system, input, output, safety. | **Key Vocabulary:**  deconstruct, reconstruct, horizontal, vertical, linkage, pivot point, load, pneumatic system, cam, axle, chassis, pulley. | |
| **In order to assess impact - a guide** |
| **Children will develop:**   * An excellent attitude to learning and independent working. * The ability to use time efficiently and work constructively and productively with others. * The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users’ needs. * The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely. * A thorough knowledge of which tools, equipment and materials to use to make their products. * The ability to apply mathematical knowledge and skills accurately. * The ability to manage risks exceptionally well to manufacture products safely and hygienically. * A passion for the subject.   Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children.  Feedback will be provided by highlighting the objective each lesson to identify those students who have achieved the objective. |