



Adel Primary School

DESIGN and TECHNOLOGY Curriculum Early Years to Year 6

Our Design and Technology curriculum is designed to inspire creativity and imagination, equipping children with the knowledge and skills to design and make products that are fit for purpose and user.

The curriculum has been built using the following components:

- Design
- Make
- Evaluate
- Technical Knowledge



EYFS Autumn 1	EYFS Autumn 2	EYFS Spring 1	EYFS Spring 2	EYFS Summer 1	EYFS Summer 2
<p>Cooking – Fruit Kebabs</p> <p>User – child</p> <p>Purpose – pattern making</p> <p>Design and make a fruit kebab with a repeating pattern.</p> <p>Evaluate product against design criteria of a repeating pattern.</p>	<p>Structures – Party Hats</p> <p>User – child</p> <p>Purpose – head wear for a celebration event</p> <p>Design make and decorate a party hat for a special occasion.</p> <p>Evaluate finished product for fit, joining materials used and decoration.</p>	<p>Textiles – Cinderella’s Slippers</p> <p>User – child</p> <p>Purpose – decorative footwear</p> <p>Evaluate existing slipper designs. Design and make a slipper to fit child’s own foot, decorating in own style.</p> <p>Evaluate against design criteria – does it fit?</p>	<p>Structures – 3 Little Pigs</p> <p>User – Three Pigs</p> <p>Purpose – a solid house</p> <p>Design and make a house that will be solid enough to withstand the wolf’s breath.</p> <p>Evaluate product against the design criteria, using a hairdryer to simulate the wolf’s breath.</p>	<p>Mechanisms – The Naughty Bus</p> <p>User – child</p> <p>Purpose – model bus</p> <p>Design and make own version of The Naughty bus. Looking at moving parts on wheeled vehicles for ideas and inspiration.</p>	<p>Cooking – Graduation biscuits</p> <p>User – child</p> <p>Purpose – to eat on graduation day</p> <p>Design, make and decorate biscuits for graduation day. With support from adults to practise and refine mixing and decorating skills.</p>



Year 1 Autumn	Year 1 Spring	Year 1 Summer
<p>Mechanisms – Celebration card User – friend. Purpose - pleasure</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> • use knowledge of existing products • what designing, and who for. • Develop and model ideas by exploring components/templates <p>Make</p> <ul style="list-style-type: none"> • select from a range of materials and components. • measure, mark, cut and shape materials • use simple finishing techniques suitable for the mechanism. <p>Evaluate</p> <ul style="list-style-type: none"> • what products are, how they work and what they like and dislike about it • • make judgements about own product against design criteria. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • explore and use sliders & levers. • different mechanisms produce different types of movement. <p>Session 1 Investigate what a mechanism is looking at everyday items. Make a simple slider and a simple lever. <i>(mechanism, lever, slider, slot, straight line, pivot, paper fastener)</i></p> <p>Session 2 Explore and evaluate products with moving parts in school. Make a simple model from card e.g. scissors. <i>(paper fastener, movement, rotate, backwards, forwards)</i></p> <p>Session 3 Explore and evaluate examples of cards and books with moving parts. Evaluate which are most popular and why. <i>(likes, dislikes, purpose, appearance, pop-up)</i></p> <p>Session 4 Design a celebration card thinking about <u>purpose, user, and mechanism</u>. <i>(slider, lever, design, user, purpose)</i></p> <p>Session 5 Make the celebration card with moving part - adding pictures to the mechanisms.</p> <p>Session 6 Evaluate final product against design criteria - <u>purpose, user and mechanism used</u>. <i>(evaluate, functional)</i>.</p>	<p>Structures – Baby Bear’s chair User – bear. Purpose – imaginary role play</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> • what products they are designing & making • whether they are for them or other users and what they are • develop ideas by talking & drawing. <p>Make</p> <ul style="list-style-type: none"> • plan by suggesting what to do next. • select from a range of materials and components. • use simple finishing techniques suitable for the structure. • measure, mark out, cut and shape materials and components. <p>Evaluate</p> <ul style="list-style-type: none"> • explore existing products in the school/local environment and what and who they are for. • suggest how product could be improved. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • make the freestanding structure stronger, stiffer and more stable. <p>Session 1 Explore and evaluate features of structures in the local and wider area. <i>(freestanding, structure, wall, tower, framework)</i></p> <p>Session 2 Identify features of structures. Build and explore f/s structures using construction kits e.g. wall pattern with Duplo/leg and wider bases for stability. <i>(base, joint, stable)</i></p> <p>Session 3 Investigate shaping, joining, and finishing techniques with range of tools & materials. Experiment folding card/paper in different ways to make structures and attaching tubes to bases for stability. <i>(stability, join, fix, frame, narrow, wide)</i></p> <p>Session 4 Investigate features of chairs then Design a chair for Baby Bear thinking about <u>stability, fit for purpose, appearance</u>. <i>(user, purpose)</i></p> <p>Session 5 Make Baby Bear’ chair.</p> <p>Session 6 Evaluate against design criteria - <u>stability, fit for purpose, appearance</u></p>	<p>Cooking – Savoury Salad User - themselves. Purpose – promote healthy eating.</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> • what products they are designing & making • whether they are for them or other users • what their products are for • develop ideas by talking & drawing <p>Make</p> <ul style="list-style-type: none"> • use simple utensils to chop, peel, slice & grate. • procedure for safety & hygiene <p>Evaluate</p> <ul style="list-style-type: none"> • who products are for • what like/dislike about them • talk about design ideas. • talk about what you’re making. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • how fruit & veg form part of a healthy diet • fruit/ veg is farmed/grown at home. <p>Session 1 Investigate and evaluate fruits and vegetables. Name and taste selected fruit and vegetables. Discuss how they are grown. <i>(fruit, vegetable, evaluate, taste, texture)</i></p> <p>Session 2 Evaluate what makes a good savoury salad. Evaluate and taste prepared savoury salads identifying key ingredients. <i>(appearance, savoury, sweet, ingredients)</i></p> <p>Session 3 Design a savoury salad thinking about <u>appearance, taste, and user</u>. <i>(design, user)</i></p> <p>Session 4 Preparing and cutting ingredients. <i>(equipment, safety, hygiene, peel, slice, grate)</i></p> <p>Session 5 Make a savoury salad.</p> <p>Session 6 Evaluate against design criteria - <u>appearance, taste, and user</u>.</p>



Year 2 Autumn	Year 2 Spring	Year 2 Summer
<p>Cooking – Fruit or vegetable smoothie User - themselves. Purpose – promote healthy eating.</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> • what products they are designing & making • whether they are for them or other users • what their products are for • develop ideas by talking & drawing <p>Make</p> <ul style="list-style-type: none"> • select from a range of ingredients • select utensils to chop, peel, slice & juice. • follow procedures for safety & hygiene <p>Evaluate</p> <ul style="list-style-type: none"> • who products are for • how products are used • what like/dislike about them • talk about what you're making • how products can be improved <p>Technical Knowledge</p> <ul style="list-style-type: none"> • how fruit & veg form part of a healthy diet • understand where food comes from <p>Session 1 Recap on prior knowledge and vocab of fruit & veg. Explore purpose of a food product (savoury salad/fruit salad/smoothies). Where does fruit & veg come from and how is it grown? (food product, healthy, plants, grown, farmed, caught)</p> <p>Session 2 Explore where does our food come from – farm to fork using the Eatwell guide. Planning an Eatwell plate. (healthy and varied diet, Eatwell guide, portion)</p> <p>Session 3 Explore ideas for fruit or vegetable smoothies, evaluating existing products and packaging. (liquid, pour, consistency)</p> <p>Session 4 Design and plan a fruit/vegetable smoothie thinking about <u>appearance, taste, and user</u>. (plan, method, measurement, prepare)</p> <p>Session 5 Make a smoothie. (cut, combine, blend, test)</p> <p>Session 6 Evaluate against design criteria - <u>appearance, taste, and user</u>. (appetising)</p>	<p>Mechanisms – toy vehicle User – action figure/small world character Purpose – transport</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> • Use simple design criteria to help develop ideas • generate ideas by drawing on own experience and knowledge of existing products. • Model ideas by exploring materials and construction kits <p>Make</p> <ul style="list-style-type: none"> • Select from a range of equipment and materials explaining choices. • Use mechanical components & construction kits • Assemble, join materials and use finishing techniques <p>Evaluate</p> <ul style="list-style-type: none"> • what products are made from, how they're used and work • talk about design ideas and what they're making • make simple judgements about product against design criteria • suggest how their products could be improved. <p>Technical Knowledge</p> <ul style="list-style-type: none"> • use wheels and axle holders • distinguish between fixed and freely moving axles <p>Session 1 Recap on prior knowledge and vocab of mechanisms. Identify and evaluate wheels and axles in the real world. Use rolls/tubes to move a weighted item – discuss how to change this to wheels and an axle. (mechanism, wheel, axle, friction)</p> <p>Session 2 Explore and evaluate a variety of small vehicles/wheeled objects identifying how wheels and axles are connected. Use a variety of materials and construction kits to mock up different wheels and axles, noting number and size of wheels and testing ease of movement. (chassis, axle holder, fixed axle, dowel, cylinder)</p> <p>Session 3 Design a vehicle with wheels that can be used to move a small world character a minimum of 2m thinking about <u>stability, movement, and purpose</u>. (stability, rotation)</p> <p>Session 4 Make a vehicle to transport a figure two metres.</p> <p>Session 5 Evaluate against the design criteria - <u>stability, movement and purpose</u> noting any changes, adaptations, or improvements to the design</p>	<p>Textiles – glove puppet User – peers Purpose – plays with puppets</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users. • use simple design criteria to help develop their ideas <p>Make</p> <ul style="list-style-type: none"> • select from a range of tools, equipment and material • follow procedures for safety • measure, mark out and cut and join components • use finishing techniques <p>Evaluate</p> <ul style="list-style-type: none"> • what materials products are made from • what like/dislike about them • make simple judgements about their products and ideas against design criteria <p>Technical Knowledge</p> <ul style="list-style-type: none"> • using a template to make two identical shapes • join fabrics with different techniques • different finishing techniques e.g. paint, sequins, buttons <p>Session 1 Explore and evaluate the features and purpose of a range of puppets. (evaluate, user, purpose, fabric, join, decorate)</p> <p>Session 2 Investigate and experiment with different joining techniques fabrics, teach and trial joining techniques. (fabric, gluing, staple, tape, running stitch)</p> <p>Session 3 Develop design criteria for a glove puppet. Make a simple template for the puppet. (template, criteria, design, fit, flexibility)</p> <p>Session 4 Design a glove puppet thinking about <u>size (fit), appearance, flexibility</u>. (pattern pieces, mark out)</p> <p>Session 5 Use template to make two pieces, cut and join product. Decorating with chosen finish and materials. (finishing techniques)</p> <p>Session 6 Evaluate against design criteria - <u>size (fit), appearance, flexibility</u>. (judgements).</p>



Year 3 Autumn	Year 3 Spring	Year 3 Summer
<p>Cooking – Dips and Dippers User – child/adult Purpose – celebration event</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> gather information about the needs and wants of consumers describe the purpose of the product make design decisions dependent on availability of resources generate realistic ideas, focusing on needs of user <p>Make</p> <ul style="list-style-type: none"> select materials and components suitable for the task explain choice of materials follow procedures for safety and hygiene <p>Evaluate</p> <ul style="list-style-type: none"> how well products achieve their purpose how well products meet their users need and wants consider views of others to improve their work use design criteria to evaluate their completed design <p>Technical Knowledge</p> <ul style="list-style-type: none"> know how to use appropriate equipment and utensils to prepare and combine food. know about fresh and processed ingredients and if they are grown reared or caught. <p>Session 1 Recap on prior knowledge and vocab of where food comes from. Explore how a variety of ingredients are grown and how seasonality impacts availability and cost. <i>(seasonality, grown, reared, caught, processed, sustainability)</i></p> <p>Session 2 Evaluate current products against own design criteria (e.g. healthy, tasty) & collecting the views of others. Refer to the Eatwell guide. <i>(design criteria, ingredients, product cost, nutrients)</i></p> <p>Session 3 Design and plan a dip and dipper thinking about <u>appearance, taste, texture and user.</u></p> <p>Session 4 Make dip and dippers. <i>(slice, claw and bridge technique, food processor,)</i></p> <p>Session 5 Evaluate against design criteria - <u>appearance, taste, texture and user.</u> Collecting consumer views and noting to improve future work.</p>	<p>Structures – desk organiser or pencil case User- child Purpose - to keep stationary tidy</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> describe the purpose of product and design features develop own design criteria and use to support ideas model ideas using prototypes <p>Make</p> <ul style="list-style-type: none"> order the stages of making use a range of tools and follow safety procedures use annotated sketches to communicate ideas <p>Evaluate</p> <ul style="list-style-type: none"> refer to design criteria as they design and make, identifying strengths and areas to develop refer to design criteria to evaluate completed products. <p>Technical Knowledge</p> <ul style="list-style-type: none"> how to construct strong, stiff shell structures. use knowledge of nets of cubes and cuboids and more complex 3D shapes. <p>Session 1 Recap on prior knowledge and vocab of freestanding structures. Investigate the purpose of a shell structure with real examples. Deconstruct 3d shapes to see the nets. <i>(Shell structure, nets, 3D,)</i></p> <p>Session 2 Evaluate existing structures and construct nets to create 3D shapes. <i>(cuboid, prism, scoring)</i></p> <p>Session 3 Write own design brief for selected product. Design a desk organisers/pencil case thinking about <u>size, stability, appearance.</u> <i>(sketch, annotate, product, design brief)</i></p> <p>Session 4 Experiment with making techniques and materials adjust the design accordingly. <i>(corrugated card, ribbed card, tabs, flaps, flange, slot)</i></p> <p>Session 5 Make the desk organiser/pencil case. <i>(joining, assemble, accuracy, finishing)</i></p> <p>Session 6 Evaluate against the design criteria <u>size, stability, appearance.</u></p>	<p>Textiles – Soft toys User – child Purpose – desk mascot</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> generate ideas for a product that reflects the needs and wants of the user model ideas using a prototype and pattern pieces. make design decisions to take account of available resources <p>Make</p> <ul style="list-style-type: none"> explain choice of materials according to functional properties and aesthetic mark out, measure, cut, join and assemble apply finishing techniques order stages of making <p>Evaluate</p> <ul style="list-style-type: none"> investigate and analyse existing products for design, purpose and needs of user. why materials have been chosen test product against design criteria <p>Technical Knowledge</p> <ul style="list-style-type: none"> how to strengthen/stiffen existing fabrics how to securely join two pieces of fabric understand the need for patterns and seam allowance <p>Session 1 Recap on prior knowledge and vocab of textiles. Investigate the 2 types of stitches and start and end techniques. Rehearse methods using embroidery thread and Binca, recapping and out lining safety procedures. <i>(binca, running, over stitch, needle, thread, 2D)</i></p> <p>Session 2 Investigate a range of soft toys and create a design specification, evaluating each against this. <i>(soft, flexible, applique, aesthetic, filling, 3D)</i></p> <p>Session 3 Design a soft toy that will serve as a mascot for your desk, thinking about <u>appearance, feel, flexibility, and shape.</u> Create a prototype shape using J Cloth material. <i>(prototype, filling, seam, finishing techniques)</i></p> <p>Session 4 Make soft desk mascot.</p> <p>Session 5 Evaluate against design criteria - <u>appearance, feel, flexibility, and shape.</u></p>



Year 4 Autumn	Year 4 Spring	Year 4 Summer
<p>Cooking – Healthy Packed Lunch Intended user - child Purpose – promote healthy eating.</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> gather information about the needs and wants of consumers describe the purpose of the product make design decisions dependent on availability of resources <p>Make</p> <ul style="list-style-type: none"> select materials and components suitable for the task explain choice of materials follow procedures for safety and hygiene <p>Evaluate</p> <ul style="list-style-type: none"> how well products achieve their purpose how well products meet their users need and wants consider views of others to improve their work use design criteria to evaluate their completed design <p>Technical Knowledge</p> <ul style="list-style-type: none"> know how to use appropriate equipment and utensils to prepare and combine food. know about fresh and processed ingredients and if they are grown reared or caught and that seasonality effects available, cost and origin of products from around the world. <p>Session 1 Recap on prior knowledge and vocab of where food comes from. Where does food come from - Explore the world origins of food in a lunch box and investigate why food comes from around the world. <i>(seasonality, grown, reared, caught, processed, sustainability)</i></p> <p>Session 2 Explore what makes a healthy packed lunch (refer back to the Eatwell guide) discussing the pros and cons of different food stuff. <i>(nutrients, precooked, fresh, processed foods)</i></p> <p>Session 3 Investigate and evaluate differing casings for sandwiches and contents by conducting consumer research – then create own design criteria. <i>(consumer, research, design criteria)</i></p> <p>Session 4 Design and plan a healthy packed lunch thinking about a <u>balanced diet, appearance, and user.</u></p> <p>Session 5 Make items for a healthy packed lunch. <i>(spreading, claw and bridge cutting technique, snip)</i></p> <p>Session 6 Evaluate against design criteria - <u>balanced diet, appearance, and user.</u></p>	<p>Electrical Systems using CAD designs User – younger child Purpose - to entertain Know / know how to: Design</p> <ul style="list-style-type: none"> generate realistic ideas focusing on the needs of the user use computer aided design to develop and communicate ideas <p>Make</p> <ul style="list-style-type: none"> order stages of making explain choice of equipment assemble, join and combine components <p>Evaluate</p> <ul style="list-style-type: none"> key inventors and their products (CAD) consider the views of others to improve work using a questionnaire. <p>Technical Knowledge</p> <ul style="list-style-type: none"> use electrical systems in products, such as series circuits incorporating switches, bulbs and buzzers. apply understanding of computing to program and control their products. <p>Session 1 Recap and rehearse prior learning in Science lessons on electrical circuits. Design an electrical circuit diagram incorporating a switch, bulb, buzzer or combination of. <i>(circuit, switch, bulb, buzzer, input device, output device, insulator, conductor)</i></p> <p>Session 2 Use CAD design referring to James Dyson CAD drawings to illustrate its use. Use Tinkercad – circuits to represent their circuit diagram drawn in the previous session. Draw a series circuit using Tinkercad and test using the simulation. <i>(CAD, series circuit, power source, electrical current,)</i></p> <p>Session 3 Investigate ideas for electrical systems using different materials and components. Look at examples of children’s night lights or electrical games e.g. Operation. Identify the pros and cons of the designs and create a design specification for own chosen outcome. <i>(pros, cons, specification, function)</i></p> <p>Session 4 Design an electrical system that will entertain a child thinking about an <u>appropriate electrical system, appearance and functionality.</u> Use Tinkercad to illustrate circuit and annotated sketches. <i>(toggle switch, push to break/make switch, finishing techniques)</i></p> <p>Session 5 Make an electrical system to entertain a younger child.</p> <p>Session 6 Evaluate against design - an <u>appropriate electrical system, appearance and functionality.</u> considering the views of the younger child using the product using a questionnaire.</p>	<p>Mechanisms – Persuasive advert with moving parts User – wider audience Purpose - to promote a product or film Know / know how to: Design</p> <ul style="list-style-type: none"> describe the purpose of the product and explain how particular parts work develop own design criteria and use to inform ideas model ideas using prototypes use annotated sketches and exploded diagrams to communicate ideas <p>Make</p> <ul style="list-style-type: none"> select materials and mechanical components suitable to the task measure, mark out, cut and shape materials with some accuracy, then assembling the components. Apply finishing techniques <p>Evaluate</p> <ul style="list-style-type: none"> analyse how well products have been designed, made and constructed refer to design criteria when making and when evaluating completed product. key inventors and their products <p>Technical Knowledge</p> <ul style="list-style-type: none"> understand and use lever and linkage mechanisms distinguish between fixed and loose pivots <p>Session 1 Recap on prior knowledge and vocab of mechanisms. Explore mechanical systems e.g. bicycle. Evaluate work of key inventors of mechanical systems (George Stephenson, James Hargreaves). Use recycled materials to make a mechanical system using levers and linkages (pivot linkage) <i>(gears, cogs, levers, pivot, mechanical system, input, output, recycled)</i></p> <p>Session 2 Make templates of various levers and linkages evaluating the input and output required to make the mechanism. <i>(paper fastener, lever, bridge, loose pivot, fixed pivot)</i></p> <p>Session 3 Evaluate current adverts for product/places/destinations. Identify the purpose of the advert and the key features that make them appealing and attractive to the user. Select own persuasive theme. <i>(purpose, user, persuasion, appealing)</i></p> <p>Session 4 Design a persuasive advert/picture with moving parts thinking about <u>smooth and controlled movement, persuasive and appealing.</u> Use exploded diagrams to illustrate mechanisms. Build a small scale prototype of the selected mechanism. <i>(design brief, function, prototype, finishing techniques, exploded diagrams)</i></p> <p>Session 5 Make a persuasive advert with moving parts.</p> <p>Session 6 Evaluate against design criteria - <u>smooth and controlled movement, persuasive and appealing.</u></p>



Year 5 Autumn	Year 5 Spring	Year 5 Summer
<p>Structures – Introduction to CAD to design frame structures. User – peer Purpose – Fairground ride for Lego figure</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> use annotated sketches and model ideas with prototypes. generate computer aided designs to develop and communicate ideas <p>Make</p> <ul style="list-style-type: none"> formulate step by step plans as a guide to making demonstrate resourcefulness when tackling a problem select and use appropriate tools and materials assemble and join materials with accuracy <p>Evaluate</p> <ul style="list-style-type: none"> about individuals in DT who have helped shape the world. Evaluate their ideas and products against original ideas and design specifications. <p>Technical Knowledge</p> <ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce frame structures. <p>Session 1 Recap on prior knowledge and vocab of frame structures. Investigate what architecture is and how this relates to structures. Know the work of some famous architects. (durability, utility beauty)</p> <p>Session 2 Investigate how to record initial design ideas and prototypes. Design a frame structure for a shelter, making a simple prototype from straws to illustrate the design. Investigate the benefits of using Computer aided design (CAD). (sketch, isometric, prototype, CAD)</p> <p>Session 3 Complete the 7 starter activities on Tinkercad. Use the initial design for the shelter to create a 3D model using the CAD software. Present and share Cad designs with peers and evaluate them against the original sketch design.</p> <p>Session 4 Investigate techniques to join wood, using triangular joints, card, elastic bands. Make the shelter using the CAD design. Evaluate to see which joints are more stable. (rigidity, triangulation, strut, compression) <i>Below session to be completed in Spring term, in conjunction with mechanisms project.</i></p> <p>Session 5 Make the structure for the fairground ride, using the skills developed above, in conjunction with the mechanism pulleys and gears project.</p>	<p>Mechanisms – Fairground ride with Pulleys and/or Gears User – peer Purpose – Fairground ride for Lego figure</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> generate innovative ideas, drawing on research use annotated and exploding diagrams to develop and communicate ideas <p>Make</p> <ul style="list-style-type: none"> Produce lists of tools, equipment and materials required Accurately mark measure, cut a d shape material components <p>Evaluate</p> <ul style="list-style-type: none"> Critically evaluate quality of design and fitness for purpose Evaluate against original design spec. <p>Technical Knowledge</p> <ul style="list-style-type: none"> that mechanical and electrical systems have an input process and an output. how gears and pulleys can be used to speed up, slow down or change the direction of movement <p>Session 1 Recap on prior knowledge and vocab of axles, axle holders and wheels that are fixed or free moving, as well as electrical circuits, simple switches and components. Recap on knowledge and vocab of joining materials and how to strengthen and stiffen structures. Investigate examples of pulleys and gears in everyday life. (mechanical system, pulley, gear, rotate, axle, drive belt)</p> <p>Session 2. Use Knex/Lego technic construction kits to investigate pulleys and gears. Investigate gears and how size of driver affects the follower, exploring gear ratio. Investigate pulleys and changing the direction of rotation and how size impacts speed. (mesh, teeth, ratio, driver, follower, rotation)</p> <p>Session 3 Introduce electrical systems to both motors and pulleys. Construct a working that incorporates a battery, motor and handmade switch. Draw circuit diagram to illustrate this for motorised pulley or gears. (motor, spindle, circuit diagram)</p> <p>Session 4 Evaluate some common fairground rides evaluating the mechanical systems in place (carousel, Ferris wheel). Design a fairground ride that will hold two Lego figures thinking about <u>speed, rotation, mechanical system and stability</u>. Use Tinkercad to create a 3D design model for the structure. (exploded and annotated diagrams)</p> <p>Session 5 Make fairground ride.</p> <p>Session 6 Evaluate against design criteria - <u>speed, rotation, mechanical system and stability</u>.</p>	<p>Cooking – Celebration savoury scone User – child Purpose – cultural celebration.</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> indicate design features of product and how it appeals to users identify needs, wants, preferences and values of particular individual/group make design decisions considering time, resources & cost <p>Make</p> <ul style="list-style-type: none"> select tools and equipment suitable for the task explain choice of materials and components formulate step-by-step plans as a guide to making follow procedures for safety and hygiene <p>Evaluate</p> <ul style="list-style-type: none"> how much product cost to make evaluate product against original design spec. <p>Technical Knowledge</p> <ul style="list-style-type: none"> know how to use appropriate equipment and utensils to prepare and combine food. know about fresh and processed ingredients and if they are grown reared or caught and that seasonality effects available, cost and origin of products from around the world. <p>Session 1 Recap on prior knowledge of where food comes from. Investigate how food is linked to celebrations and culture and how seasonality effects product choice. (seasonality, grown, reared, caught, processed, fresh, processed, precooked, source, culture, celebration)</p> <p>Session 2 Evaluate some food products linked to different cultural celebrations looking at packaging and its purpose. (evaluate, sensory, packaging, inform)</p> <p>Session 3 Design and plan the ingredients, method and packaging information for a celebration scone thinking about <u>ingredients, taste, appearance, and purpose</u>. (method, description, appeal, celebration)</p> <p>Session 4 Make celebration scone. (recipe, sift, mix, stir, combine, roll, cut out, bake)</p> <p>Session 5 Evaluate against design criteria – <u>taste, appearance, and purpose</u>. Evaluate overall cost of product per item.</p>



Year 6 Autumn	Year 6 Spring	Year 6 Summer
<p>Textiles – Holder/cover for an everyday item. User - child Purpose – protection/ aesthetics</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> identify the design features of the product that will appeal to the user generate innovative ideas based on research <p>Make</p> <ul style="list-style-type: none"> explain choice of materials according to functional properties and aesthetics make step-by-step guide to making accurately measure, mark, cut and shape materials apply range of finishing techniques <p>Evaluate</p> <ul style="list-style-type: none"> critically evaluate the quality of the design and manufacture evaluate ideas and products against original design specification <p>Technical Knowledge</p> <ul style="list-style-type: none"> a 3d textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabric can be strengthened, stiffened and reinforced where appropriate <p>Session 1 Recap on prior knowledge of stitching, joining, finishing techniques and use of patterns. Investigate and evaluate a range of existing textile products that hold items, e.g. hot water bottle cover, purse, bag for materials used, joining techniques, finishing techniques and properties of materials. Think about fabric choice, user and purpose. Test the properties of the fabric e.g. waterproof, stretch, durability. <i>(fabric, natural fibres, synthetic fibres, properties)</i></p> <p>Session 2 Explore different stitching techniques for joining materials. Practice stitching skills using an embroidery hoop. <i>(embroidery hoop, thread, stitch, running, back & cross stitch)</i></p> <p>Session 3 Sketch and annotate ideas for holders for an everyday item. Write a design brief for the item - what it is, why making it include its form and function. Add swatches of chosen materials. Design a fabric holder for an everyday item thinking about <u>form, appearance and functionality</u> <i>(form, function)</i></p> <p>Session 4 & 5 Create a pattern for the design. Make the product adding an appropriate finish for decoration. <i>(pinning, tacking, decoration, aesthetic, fabric paint, embroidery)</i></p> <p>Session 6 Evaluate the finished product against the design criteria <u>form, appearance and functionality</u> discussing the quality control process. <i>(quality control, functionality)</i></p>	<p>Computing to control User - child Purpose - warning device</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> generate innovative ideas, drawing on research use annotated and exploding diagrams to develop and communicate ideas <p>Make</p> <ul style="list-style-type: none"> demonstrate resourcefulness when tackling practical problems accurately assemble and combine components. <p>Evaluate</p> <ul style="list-style-type: none"> what impact product has beyond its intended purpose Critically evaluate quality of design and fitness for purpose Evaluate against original design specification. <p>Technical Knowledge</p> <ul style="list-style-type: none"> apply understanding of computing to program, monitor and control a product. Understand the of computer control systems in products <p>Session 1 Recap on prior knowledge of electrical systems and use of microprocessors in Computing. Complete an introduction to microprocessors exploring the key vocab, recognising the difference between a simple circuit and a complex integrated electrical system. Complete a focussed practical task to revise use of micro:bits. <i>(microprocessor, micro: bit, voltage, resistor, LEDs)</i></p> <p>Session 2 Explore a range of smart devices, e.g. Alexa, Apple watch and technology within school that interacts with other devices – smoke sensors, maglock, motion sensors. View the micro:bit 'door alarm coding' video. Explore initial ideas and develop specification for a warning device for a child. <i>(smart device, inputs, outputs, sensors, specification)</i></p> <p>Session 3 Explore the use of magnets and miro:bits to create a magnetic field a act as a sensor. <i>(magnetic field, compass sensor)</i></p> <p>Session 4 Evaluate initial ideas and design a warning device for a child in line with the specification determined in the previous session. Design using an exploded view of the finished product. Build a prototype of the casing if appropriate. <i>(exploded and annotated diagram)</i></p> <p>Session 5 & 6 Make and code the warning device. Evaluate the product against the design specification and improve it by adding any identified additional features (speaker, variable, timer). Test out the final product in action against its purpose and the user.</p>	<p>Cooking – The Great British Bread Off User – Judging panel/peers Purpose – best bread competition.</p> <p>Know / know how to: Design</p> <ul style="list-style-type: none"> carry out research, using surveys, interviews identify needs, wants, preferences and values of particular individual/group and clarify ideas through discussion. make design decisions considering time, resources & cost <p>Make</p> <ul style="list-style-type: none"> select tools and equipment suitable for the task explain choice of materials and components formulate step-by-step plans as a guide to making follow procedures for safety and hygiene use techniques that involve a number of steps <p>Evaluate</p> <ul style="list-style-type: none"> how much product cost to make and how innovative products are evaluate product against original design specification identify strengths 7 areas for development. <p>Technical Knowledge</p> <ul style="list-style-type: none"> use appropriate equipment and utensils to prepare and combine food. about fresh and processed ingredients and if they are grown reared or caught and that seasonality effects availably, cost and origin of products from around the world. <p>Session 1 Recap on prior experience of where food comes from and cooking skills and all aspects of safety and hygiene. Challenge to create the 'best' bread. Complete an evaluation of a wide range of existing products. <i>(consumer research, innovative, cost, sweet, savoury)</i></p> <p>Session 2 Investigate and practise techniques for making bread by following a simple bread recipe. Evaluate the finished product against agreed criteria. <i>(dough, knead, plait, shape, prove, yeast, measure, design criteria)</i></p> <p>Session 3 Evaluate first attempts - repeat practical, adapting where required and trialling additional ingredients.</p> <p>Session 4 Design and plan the ingredients, for the 'best' bread thinking about <u>ingredients, taste, cost, appearance, and appeal.</u></p> <p>Session 5 Make the 'best' bread.</p> <p>Session 6 'Judging panel' / peer evaluations against agreed criteria.</p>



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