Design & Technology Curriculum Overview

Year	Area of design and product	Prior Learning	Key Questions	Vocabulary	Skills	Tools/Equipment
1	Structure: Freestanding structures	Pupils have explored and built simple structures in FS.	• What is a structure? • What are the functions of freestanding structures? • What frames make a freestanding structure strong? • What are the different ways of joining materials to make a structure? • Can you plan to a brief and evaluate your design? • How can we make a tall tower more stable? • What materials would build a strong, stiff and stable house?	Structure Freestanding Hollow Wall Pattern Stability Join Frame Fix Base Stability Brief Plan Prototype Aesthetics Stability Centre of gravity Buttress Evaluate Fit for purpose Sturdy Shell structure	Consider function, user and purpose Design, evaluate and improve Joining Construction	Scissors Paper Sellotape Glue Boxes and tubes Blocks (eg. Lego) Spaghetti Mini marshmallows Toy car
1	Mechanism's: Sliders and leavers	Pupils have used construction kits in FS to make simple sliders and leavers.	• What is a mechanism and how can we make a simple lever? • Explore and evaluate products with moving parts	Mechanism Slider Lever Slot Straight line Pivot Movement Rotate	Plan and plan Investigate and evaluate	Card Scissors Sellotape Ruler Pencil Paper fastener

			• What are the properties of some everyday materials? • Investigate and evaluate cards that have a variety of mechanisms and moving cards • Generate and evaluate ideas for the design of a celebration card (Easter Card?) • Apply chosen mechanism to celebration card • Evaluate your final product	Forwards Backwards Flexible Rigid Bend Twist Squash Stretch User Function Purpose Appearance Pop up Generate		
1	Cooking & Nutrition: Preparing fruit and vegetables	In FS pupils have been introduced to different food types	• Investigate, identity, evaluate different fruit and vegetables • Explore and plan a food product for a user (fruit/ vegetable salad) • How can we prepare different fruit for a fruit salad?	Investigate Evaluate Fruit Vegetable Food products Criteria Ideas Purpose User Prepare Cut Peal Chop Combine	Investigate and evaluate Planning to meet needs of the user Food preparation skills: prepare, cut, peel, chop	Variety of fruit and vegetables Knife Chopping board Bowl Peeler Spoon
2	Mechanisms Wheels and Axles	In Y1 children have created mechanisms using sliders and leavers	• To investigate a variety of vehicles and their uses and features. • To investigate wheels, axles and chassis.	Vehicle Features Purpose Wheel Axle	Consider function, user and purpose Design, evaluate and improve Joining Construction	Wheels and axles (and/or materials that can be used as such) Card and cardboard boxes

			• To be able to investigate ways of creating and decorating the body of a vehicle. • To be able to design a vehicle. • To be able to make a vehicle based on a design. • To be able to evaluate a finished product.			Lego, K'nex Modelling materials
2	Textiles: templates and joining techniques		• Explore a range of existing products • To experiment with different joining techniques • To use design criteria to develop ideas to create a final design • To explore how to make accurate templates and pattern pieces • To explore finishing techniques • Create a final puppet • Evaluate our puppets and see if they are suitable for their users	Evaluate Purpose Existing User Template Sew Running stitch Mock up Staple Criteria Design Communicate Pattern pieces Seam allowance Mark out Sew Finishing techniques Applique Joining techniques	Evaluate Design a product for end user Use different joining techniques on fabric	Fabric Chalk Scissors Needle, thread, pins Glue Stapler Fabric pens Buttons, sequins etc.
3	Cooking and Nutrition: Healthy and varied diets	In Year 1 children have studies food types and created fruit salads using a	• Using research to develop design criteria • Exploring food and where it comes from	Target market Market research Grown Reared Fresh	Research Cutting techniques Food preparation including using a blender	Cutting knife , table, spoon, cutting board Food processor

		variety of preparation techniques.	• Making a delicious dip (hummus) • Evaluating your product	Hygiene Ingredients Blend and Claw and bridge		Selection of vegetables Caned chickpeas Lemon juice, garlic, olive oil, cumin
3	Structures: Shell, Solid and Combination Structures	In Y1 pupils have explored and created freestanding structures. Pupils should also be able to apply learning from 3d shapes in maths.	• To investigate structures • To construct nets to create 3d shapes • To develop a design brief and create design sketches • To experiment with making techniques • To measure, mark our, cut and shape materials • To assemble, join and combine materials to create a finished product • To evaluate the final product	Structure Shell structure Corrugated Ribbed Laminated Cuboid Prism Cylinder Net Scoring Product analysis Function Solid structures Combination structures Design specification Making Evaluating Tab Flange Slot Assembling Measuring Shaping Accuracy Joining Finishing	Construction using techniques such as measuring, marking out, cuts and shape materials Evaluate Design	Food container Empty packaging Ruler Card Tape Scissors

4	Mechanisms: Levers and Linkages	Children have explored mechanisms in Y1 and Y2. This unit will build on their understanding of sliders, leavers, wheels and axles.	• Understand how a range of mechanisms create movement • Developing understanding of different mechanisms and how to make them • To design a product criteria meeting the need of the user • To use a range of techniques to produce a prototype and then make further improvements • Use a range of techniques to produce final idea • To use a range of techniques to complete final product and complete against design criteria • Evaluation of final product against views of others	Mechanism Lever Slot Pivot Design brief Recycle Bridge Loose Pivot Fixed pivot Persuasive Prototype Adaption Design criteria Evaluation	Create a variety of mechanisms Design Evaluate	Boxes and cardboard Split pins
4	Textiles: Combining Different Fabric Shapes	In Y1 children have investigated and used different joining techniques In science they have also looked at the	• What are the properties of different fabrics? • What are the different stitches used to join fabrics • What makes an effective range of initial	Natural fibres Synthetic fibres Thread Stitch Sketch Form Function Manufacture	Develop more skills to join fabrics using a variety of stiches Design and revise initial designs Evaluation	Fabrics Needle Thread Pins Beads Ribbon Fabric paint

		properties of different materials.	sketch ideas (mobile phone case)? • How do we develop initial designs? • How to use tools and equipment to mark our phone holder accurately • What stitch will be most suitable to join our fabric together? • How can we correctly apply a finish to our mobile phone case? • Why is it important to evaluate your finished product?	Pattern Temporary Quality control Finish Evaluate		
5	Electrical Systems : Simples circuits and switches	Children have previously completed a unit on electricity in science	• To learn about electrical systems • To develop a design criteria for a battery operated night light • To design and construct simple electrical circuits (Using CAD) • To generate ideas using different electrical components and materials • To design, make and test components and materials for an electrical system • To select complements to create electrical system	Electricity Input Output LED User Purpose CAD Tinkercad Toggle switch Push to break switch Push to break switch Prototype Assembling Joining Finishing	Create simple electrical systems use a range of electrical components Design and revise designs to meet needs of users Evaluate	Laptops with CAD (Tinkercad) Modelling materials Electrical components Cardboard Split pins Paperclips Tin foil Bulldog clips Coins

			• To evaluate how well the product meets the needs of the user			
5	Cooking and Nutrition: Celebrating Culture and Seasonality	Children have investigated food types in KS1. They have used a variety of food preparation techniques to create cold food.	• Celebrating culture and seasonality • Where does our food come from? • Understanding the needs of a healthy diet • Design and soup that reflects a culture of celebration • Combining materials: creating your soup	Culture Needs Dietery Values Wants Preferences Religious Nutricious Grown Reared Caught Processed Seasonality Source Fresh Pre-cooked Healthy Varied Values Preferences Wants Needs Diet Culture Design specification Cooking Food hygiene	Use a variety of food preperation techniques to prepare food stuffs for cooking. To use heat to combine and cook different foodstuffs.	Ingredients to make soup Access to kitchen
6	Control Systems (Reactions)	Pupils have created simple electrical circuits in Y5 DT. They have also studied electricity in science.	• What is an electrical system? • Exploring electrical systems and the need for control in DT	Electrical conductor Electrical insulator Components Simple circuits	Pupils will explore creating controlled elctircal circuits They will create design that meets a design brief	Electrical components Corrugated card Screwdrivers Glue Tape

		They have previously explored and made a range of mechanical systems.	• How can we control simple circuits to make more functional products? • Responding to a design brief and developing an design (smart device to encourage children to recycle) • Planning to make an end product • Making a final protoype • Making a final prototype: electrical system • Evaluate the end product	Process Mechanism Mechanical system Microprocessor Programme Voltage Resistor Smart device Recycle Specification Concepts Initial idea Final idea Exploded view	Evaluation	Scissors Elastic bands Micro bit website Modelling materials
6	3D Computer Aided Design	Pupils have previously used CAD system Tinkercad in Y5 Electrical systems	• What makes good design and why do we research before completing a design? • What are architects and what do they do? • What is a specification and how do we right one? • What makes a good initial design? • What is computer aided design? • Can you develop your design using CAD? • How can you present and share your final designs?	Primary research Secondary research Architects Structures Specification Freehand sketch Isometric Prototype Development Rendering	Pupils will continue to develop skills using CAD system Tinkercap Design Evaluate	Tinkercad

			• Why is it important to evaluate your final design?			