DT Overview

Project	Disciplinary Knowledge	Substantive Knowledge	Language	SDG
EYFS				
Mechanisms in our environment 	• Explore different mechanisms found in the environment, like doors that open and close or wheels on a toy. • Draw simple pictures to show how they want something to move, like a toy car or a gate. • Use simple materials like cardboard and paper to make a moving part, such as a wheel or a flap. • Talk about how their model moves and what they like about it. • Understand basic movement, like how pushing or pulling can make something move.	• Identify simple properties of materials (soft, hard, rough, smooth). • Understand basic material types (wood, plastic, fabric). • Use basic tools safely (e.g., scissors, glue). • Construct simple structures and explore stability. • Recognise and use simple mechanisms (e.g., wheels, axles). • Generate simple ideas for making and designing. • Test and modify creations to solve problems. • Notice and discuss designed objects in everyday life. • Collaborate and share ideas during building activities. • Describe and communicate ideas using simple vocabulary.	Lever Pulley Gear Rotate Lift Push Pull Move	
Textiles **Festival Decorations.** 	• Look at different decorations used in festivals, like bunting or hanging ornaments. • Talk about what colours and shapes they see in these decorations. • Draw a picture of a decoration they would like to make for a festival. • Choose their favourite colours and shapes for the decoration. • Use fabric pieces, felt, or paper to create their decoration. • Practice simple skills like cutting out shapes and gluing or attaching pieces together. • Show their decoration to the group and talk about what they like about it. • Discuss how their decoration makes them feel. • Understand the idea of joining pieces together to make something.		Sparkle Bright Colour Hang Ribbon Glitter Shine Ornament Festive Star	
Junk Modelling/ Construction 	• Collect different items that can be used for junk modelling, like boxes, bottles, and lids. • Talk about where these items come from and why reusing them is helpful. • Think about what they want to make, like a car, a robot, or a building. • Draw a simple picture to show what they want to create. • Use the junk materials to build their model, experimenting with stacking, sticking, and joining parts. • Practice using tools like glue sticks or tape to attach pieces. • Show their model to others and talk about what they made. • Discuss what they like about their creation and how they made it. • Learn how to join different items together using glue or tape.		Build Stick Cut Glue Join Shape Create Cardboard Tape Make Model	

DT Overview

Explore understanding of food – A world of food 	• Explore and develop skills in mixing/decorating/cutting/spreading • Begin to think of interesting ways to decorate food. • Describe differences between some food groups (i.e. sweet, vegetable etc.). • Discuss how fruit and vegetables are healthy. • Say where some foods come from, (i.e. plant or animal). • Describe textures, tastes and preferences of a variety of foods. • Know the importance of washing hands & cleaning surfaces. • Discuss the rules of food safety and hygiene.		Tasty Sweet Spicy Crunchy Sour Different Smooth Juicy Favourite	
Project	**Disciplinary Knowledge**	**Substantive Knowledge**	**Language**	**SDG**
Year 1				
Workbook	• Use the workbook to write down and draw simple ideas. • Record basic reasons for their design choices and share simple thoughts about what worked well. • Collect textures, patterns, and simple samples to use in their project.			
Explore understanding of food - fruits  Fruit Kebabs Smoothies Apple Crumble	**Explore and develop skills in cutting, peeling, mixing, blending** **Design/Make/Evaluate** • Begin to design and create appealing products based on some simple design criteria. • Begin to learn how to evaluate their product. • Design food that is visually appealing. **Nutrition** • Begin to know the properties of ingredients and the importance of varied diet. • Explain how food and drink are needed for active/healthy bodies. **Consumer Awareness** • Understand how a variety of food is grown and where their ingredients have come from. • Know that a variety of factors makes food appealing. **Food Safety and Hygiene** • Explain hygiene and keep a hygienic kitchen. • Know when to ask for adult help to assist in cooking and preparing food.	• To know the basic rules of kitchen safety. • To know and recognise at least 10 fruits. • To know what makes an item a fruit.	Names of equipment, name of utensil, food hygiene, hand washing, safety, fruit names, design, make, Fruit names, seasonality, products, design criteria, product	6, 2, 12
Inclusive Playground Design  Can I design, make and evaluate a new desirable playground for my local community to promote inclusion and physical wellbeing in young people?	**Research** • Explore different types of playgrounds and identify features that make them inclusive for everyone. • Learn about the materials used in playground structures and why they are chosen. **Design/Make/Evaluate** • Generate simple ideas for an inclusive playground, considering the needs of all community members.	• To know what a free-standing structure is. • To know how to make a structure stable • To know that an accurate drawing is important when designing a product.	structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner,	11, 3

DT Overview

		• Develop ideas through drawings, focusing on features that make the playground accessible. • Practice joining different materials to build a simple model of a playground. • Use basic tools to cut, shape, and assemble components with teacher guidance. • Compare their playground model to existing playground structures, discussing what makes it inclusive. • Talk about what works well and what could be improved. **Technical Knowledge** • Learn different methods of joining materials, such as using glue or fasteners. • Understand simple structural features like balance and support.		thicker, corner, point, straight, curved, brace, freestanding,	
Sliders and Levers – Eco Book	Can I design, make and evaluate a class information book to help explain to Reception class how to save energy, recycle and look after the planet?	**Research** • Understand the concept of saving energy and why it is important at home and school. Explore existing books that use simple sliders and levers. **Design/Make/Evaluate** • Generate simple ideas for an energy-saving information book. • Develop ideas through drawings, including where sliders and levers can be used. • Plan and suggest the next steps in making their book. Create sliders and levers, using tools to cut and attach pieces accurately. • Test how well the sliders and levers work in the book. Discuss how their book helps communicate saving energy effectively. **Technical Knowledge** • Understand how sliders and levers work to create movement. Use correct terms like "lever," "slider," and "pivot."	• Know what a lever/slider is. • To know what a mechanism is. • To know the importance of recycling and saving energy. • To know that different mechanisms produce different types of movement.	lever, slider, mechanism, pivot point, arc, slot, bridge, guide, lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, arc, straight	7
Project		**Disciplinary Knowledge**	**Substantive Knowledge**	**Language**	**SDG**
Year 2					
Workbook		• Plan and explore simple ideas by drawing and writing. • Gather and record textures, patterns, and samples used in their work. • Suggest simple improvements for their own projects. • Use simple words to describe their work, starting to develop a design vocabulary.			
All-Terrain Litter Trolley (Wheels and Axles)	Can I design, make and evaluate a stable vehicle for litter collection over various terrains?	**Research** • Learn about different ways to collect litter and why a cart might be better than carrying by hand. • Explore different wheel types and how they work on different surfaces. **Design/Make/Evaluate** • Use prior knowledge of levers to develop ideas for a litter trolley.	• Know what an axle is and its function. • To know that wheels and axles can be assembled in different ways. • To know what a chassis is and its function.	Net, axle holder vehicle, wheel, chassis, body, dowel, masking tape, hacksaw, vice.	6

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		• Draw and label the trolley design, showing where wheels and axles will be used.. • Plan the building process step-by-step. • Use tools to measure, cut, and join parts to create a moving trolley, choosing materials based on their properties. • Test the trolley on different surfaces to see how well it moves. • Identify strengths and suggest improvements to make the trolley more effective. **Technical Knowledge** • Understand how wheels and axles function, including fixed vs. freely moving axles. • Use the vocabulary for parts like "axle," "wheel," and "chassis."			
Glove Puppet for Mental Health (Monster Hand Puppet)	Can I design, Make and Evaluate a glove puppet for themselves to promote mental health through role play?	**Research** • Learn about mental health and why it is important for everyone, including ways we can talk about feelings. • Explore different types of glove puppets and how they can help express emotions. **Design/Make/Evaluate** • Generate ideas for a monster hand puppet that can be used to promote mental health. • Draw a design for the puppet, labelling colours, materials, and features. • Follow the design to sew the puppet, using running stitch or whip stitch. • Use safe techniques for cutting fabric and joining parts. • Test the puppet and discuss how well it represents emotions. • Compare the finished puppet to the original design, suggesting any improvements. **Technical Knowledge** • Learn how to use basic stitches like running stitch and whip stitch. • Understand the properties of different fabrics and why they are suitable for the puppet.	• To know appropriate ways to join fabric. • To know what a template it. • To know ways to embroider/decorate their product.	Needle, thread, scissors, template, puppet, fabric, design, purpose, glove puppet, finger puppets, marionettes, rod puppet needle, thread, design, embroider, evaluate, fray, hand puppet Seam, sew, components,	3
Explore understanding of food – vegetables	Vegetable Soup Hummus and fresh Vegetables Coleslaw	**Explore and develop skills in Cutting/chopping, peeling, mashing, grating, mixing, heating** **Design/Make/Evaluate** • Make products look attractive. • Carefully select ingredients considering taste and texture. • Evaluate products made based on their own likes/dislikes. **Nutrition** • Describe how healthy diet equals variety/balance of food/drinks. • Think about how to grow plants to use in cooking.	• Recognise at least 20 vegetables. • Know what makes an item a 'vegetable'. • Know what the 'Eat-well' plate is and recommended proportions of food consumed. • Know that different fruit and vegetables grow in different seasons.	, Taste, texture, like, dislike, balance, healthy, ingredients, planning, investigating tasting, arranging, popular,	2, 6

DT Overview

		• Explore eat well plate; explain there are groups of food, describe “five a day”.. **Consumer Awareness** • Begin to understand food comes from UK and wider world, needing different environments/climate. • Explore branding of food and drink products. • Begin to explore the seasonality of food. **Food Safety and Hygiene** • Use a greater variety equipment safely including asking for help when heating or preparing food. • Explain the basics of food hygiene including clean hands, surfaces, hair, jewellery, nail varnish.		design, evaluate, criteria, 30 x vegetable names.	
Project		**Disciplinary Knowledge**	**Substantive Knowledge**	**Language**	**SDG**
Year 3					
Workbook		• Observe and record different materials, experimenting with them. • Use a design brief to come up with ideas for projects. • Plan and record the materials used for prototypes. • Explain decisions made, giving reasons for choices. • Add comments to show how to improve their work and reflect on what worked or didn’t. • Use simple annotated sketches to communicate ideas.			
Picture Frame as a Gift	Can I design, make and evaluate a sturdy picture frame as a gift.	**Research** • Investigate different types of picture frames, focusing on how they are constructed and reinforced. • Consider what makes a picture frame visually appealing. **Design/Make/Evaluate** • Create ideas for a picture frame, taking into account strength and aesthetics. • Develop and communicate ideas through annotated sketches, indicating where reinforcement is needed. • Plan the building process, listing materials and tools needed. • Accurately measure, cut, and join wood to build a strong frame. • Apply finishing touches to make the frame visually appealing as a gift. • Compare their picture frame to existing products, focusing on strength and appearance. • Discuss strengths and areas for improvement based on their design goals. **Technical Knowledge** • Learn how to reinforce materials to make them stronger. • Use correct terminology for materials and methods, such as "reinforcement," "join," and "aesthetic."	• To know what items can be recycled and reused • To know how to design a functional product that is fit for purpose. • To know how to accurately measure and cut • To know different ways of attaching materials.	Stability Reinforce Frame Joinery Structure Upright Horizontal Strength Balance Secure	12

DT Overview

Shadow Puppet Character (Levers and Linkages) 	Can I design, make and evaluate a mechanical shadow puppet using levers and linkages	**Research** • Investigate different types of shadow puppets and how they use movement. • Compare different types of linkages used in puppets to create motion. **Design/Make/Evaluate** • Develop ideas for a shadow puppet using their knowledge of levers from Year 1. • Create annotated sketches showing where linkages will create movement. • Create linkages using card and split pins to allow movement. • Assemble the puppet, ensuring each part moves as intended. • Test the puppet to see how effectively it moves and creates a shadow. • Discuss how the linkages improved the movement of the character. **Technical Knowledge** • Understand how linkages create movement by connecting levers. • Use terms like "linkage," "lever," and "pivot" accurately.	• To know what a pivot mechanism is, and how it is used • To know what a lever and linkage is. • To know what a prototype is. • To know the design process.	Mechanism, lever, linkage, pivot, slot, bridge, Guide, Input Movement, Output Movement Fixed pivot Loose pivot Evaluate	
Explore understanding of food – carbohydrates 	An investigation into world flour Flat Bread, Scones and Pasta	**Explore and develop skills in cutting, peeling, mixing, blending, grating. Kneading, baking, weighing and measuring** **Design/Make/Evaluate** • Think about presenting product in interesting/ attractive ways. • Explore how using different ingredients and methods can change the taste/texture of products. • Evaluate products made by themselves and others. **Nutrition** • Describe eat well plate and how a healthy diet equals variety / balance of food and drinks. • Explain importance of food and drink for active, healthy bodies. **Consumer Awareness** • To explore the reason for consumer choices • Begin to know that food is marketed specifically at consumers. **Food Safety and Hygiene** • Know the importance of how to be safe/hygienic. • Understand how to use a greater variety of kitchen equipment safely. • Understand that food allergies affect safe food preparation.	• To know what a carbohydrate is. • To know what a consumer is. • To know different foods, have a different cost and come from different places. • To know the importance of how to be safe and hygienic • To know key ingredients can be exchanged. • To know an increased variety of cooking techniques.	hygiene, ingredients, dough, flour, wholemeal, unleavened, nutrition, varied, gluten, carbohydrate, harvest, grain, knead, bake, weigh, measure, consumer, allergy, allergen	6, 2, 12

Project	**Disciplinary Knowledge**	**Substantive Knowledge**	**Language**	**SDG**
Year 4				
Workbook	• Collect and record visual information from different sources. • Plan and try out ideas, thinking about materials and techniques. • Use specific criteria to guide design choices and show how it will work through annotations. • Adapt and improve original ideas as they develop, recording changes in the workbook. • Keep notes to explain their intentions and innovations.			

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		• Use cross-sectional diagrams to show details. • Evaluate their product and suggest improvements to make it more appealing. • Start to use basic technical vocabulary to describe their work.			
Litter Picker (Hydraulics and Pneumatics)	Can I apply my knowledge of hydraulic with levers to create a litter picker to clean up my local area.	**Research** • Explore different types of litter pickers and their mechanisms. • Learn how hydraulics and pneumatics are used in everyday products to create movement. **Design/Make/Evaluate** • Develop ideas for a litter picker using prior knowledge of levers and linkages. • Create a design that incorporates either a hydraulic or pneumatic mechanism. • Formulate a step-by-step plan for making the litter picker. • Assemble materials, incorporating a simple hydraulic or pneumatic system for grabbing. • Test the litter picker to evaluate its reach, strength, and ease of use. • Identify what worked well and suggest improvements. **Technical Knowledge** • Understand the basic principles of hydraulics and pneumatics. • Use terms like "hydraulic," "pneumatic," and "cylinder" accurately.	• To know what a pneumatic and hydraulic mechanism is, and how they are used • To know what a lever and linkage is. • To know what a prototype is. • To know how to apply the design process to create a	Inflate Deflate Input movement Output movement Pressure Compression Pneumatic system Tubing Syringe Plunger Pump Seal Airtight	15
Teddy Bear from Recycled School Uniform	Can I design, make and evaluate a new repurposed product from a second-hand pillowcase to promote a sustainable culture?	**Research** • Explore the importance of recycling and repurposing old items to reduce waste. • Investigate different styles of teddy bears and the materials used to make them. **Design/Make/Evaluate** • Create a design for a teddy bear made from old school uniforms, considering the shape and features. • Include details on how different parts will be joined and reinforced. • Use a range of stitches, including back stitch, to sew the teddy bear. • Carefully cut pieces from old uniforms and join them securely, ensuring a neat and strong finish. • Compare the teddy bear to the original design, discussing its appearance and sturdiness. • Reflect on how well the recycled materials worked and suggest any improvements. **Technical Knowledge** • Learn to use a variety of stitches, including back stitch, for different purposes. • Understand how to use different fabrics effectively and how to make strong joints.	• To know that materials can be recycled into new products. • To know a range of different fastenings and how to join them. • To know a variety of stitches. • To know the design process. • To know what a template is and how to use it.	Fabric, names of fabrics, finishing technique, running stitch, backstitch, whipstitch, seam, seam allowance, stitch. recycling, upcycling and repurposing	12

DT Overview

Explore understanding of food – herbs and spices 	Tomato Sauce Biscuits Spring Rolls (sweet and savoury)	**Explore and develop skills in cutting, peeling, mixing, blending, grating, baking, weighing and measuring, rolling/folding, frying/boiling/reducing** **Design/Make/Evaluate** • Know that preparing foods in different ways produces a variety of outcomes, in terms of appearance and appeal. • Use a greater variety of preparation techniques. • Design, make and evaluate products made by themselves. • Evaluate products made by themselves and others, offering suggestions for improvement. **Nutrition** • Know that different foods affect bodily and oral health. • Know that some people have allergies or intolerances to specific foods or food groups. • Explore how food contains different amounts of energy, knowing which foods are energy dense. **Consumer Awareness** • Explore an understanding that food is grown, reared or caught in the UK or wider world and brought to the UK. • Understand ingredients can be fresh, pre-cooked or processed. • Develop an understanding of consumer choices. • Explore understanding of portion size. **Food Safety and Hygiene** • Explain how to be safe / hygienic and follow guidelines. • Know that food packaging and labels provide a source of information • Explore the importance of correct food storage	• To know the name for different cooking methods. • To know the correlation between seasonality, location and cost of foods. • To know food can travel far and this impacts the cost/climate. • To know what Fairtrade is. • To know the names of at least 8 herbs and spices and their effect upon a dish.	spice, savoury, cinnamon, nutmeg, flavour, ginger, zest identifiable flavour characteristics - cooling, earthy, floral, fruity, herbaceous, hot, nutty, piney, pungent, spicy, woody Source, journey, health benefits, origins	12, 2, 9