

Project Title: Design, make and evaluate a moving card for a family member for a celebration.

Length of unit – 2 afternoon sessions and 1 deep learning day

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	- Experiences of working with paper and card to make simple sliders. - Experience of cutting, shaping and joining skills using scissors, glue and tape.	- Slider - Lever - Pivot - Slot - Bridge - Pull - Push - Up - Down - Straight - Curve	- Recap on use of sliders from last year and ask children to explain how they work. - Using books and prepared examples of simple mechanisms, introduce a lever and ask children to explain how they work. Discuss the function of a split pin acting as a pivot point. Discuss why we need a bridge/guide to support the lever. Show the difference of having one/not having one. - Make a lever prototype using card by introducing a ‘problem’ of how to get a butterfly to travel to a flower and model how to do this using a lever mechanism. - Give children a range of different ‘problems’ and cut out pictures. Children to cut and stick the pictures onto a lever and join with a split pin (fixed pivot) to make a moving lever.
Learning in this unit	To know that Technical Knowledge - A range of existing books and everyday products use simple levers. - Different mechanisms produce different types of movement. To know how to Technical Knowledge - Make, explore and use levers. Designing - Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Plan collaboratively through discussion. - Develop, model and communicate their ideas through drawings and mock-ups. Making - Select from and use a range of tools and utensils and equipment to perform practical tasks. - Select from a range of materials or fruit and vegetables according to their characteristics (colour, texture and taste). - Use simple finishing techniques suitable for the product they are creating. Evaluating - Evaluate their product by discussing how well it works and whether it meets design criteria.		- Explain to the children that they will making a card for a family member. - Discuss types of celebrations – Christmas, harvest, thank you, congratulations, friendship etc. - Introduce simple design criteria eg, the mechanism should work smoothly, it should make the right type of movement. - Model how a lever can include a slot or not to either show or hide the mechanism (eg – you may want to show the mechanism if it’s a bunch of balloons with strings, or you may want to hide it if it is a sun going across the sky). - Children to design their ideas by drawing an annotated sketch and labelling the key parts, including the lever. - As a whole class, talk about the order in which the mechanisms will be made. - Discuss the finishing techniques the children might use e.g., coloured pencils, felt tipped pens or crayons. - Children to make their cards. Adults to assist with the split pin – either use a single hole punch to make a hole or use blutack/plasticine and poke a pencil through. - Ask children to evaluate their final products against the original design criteria by placing a tick in a box next to each criteria.
Resources	- books and everyday products with levers and slider mechanisms - slider and lever teaching aids - card strips, card rectangles, paper, masking tape, paper fasteners, paper binders, stick glue, PVA glue, finishing materials and media - left/right handed scissors, cutting mats		
Learning Endpoints	- Real-life items that use levers such as games (hungry hippos), seesaws at a park and brakes on a bike - The difference between sliders and levers. - Make lever prototypes using card and split pins. - Design a card with a lever and explain the user (family member) and purpose (celebration) - Draw an annotated sketch of their product and label it with materials and key parts - Select from PVA glue, glue sticks and scissors to cut and join materials (card and paper). - State if their card is suitable for the intended user and purpose by whether it meets the design criteria.		

Project Title: Design, make and evaluate a vehicle model for younger children to teach them about transport.

Length of unit – 2 afternoon sessions and 1 deep learning day

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	- Assembled vehicles with moving wheels using construction kits. - Explored moving vehicles through play. - Gained some experience of designing, making and evaluating products for a specified user and purpose. - Developed some cutting, joining and finishing skills with card.	- Vehicle - Wheel - Axle - Axle holder - Chassis - Body - Cab	Explore a range of toy cars. Through questioning, direct children's observations e.g. the number, size, position and methods of fixing wheels and axles. How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round?
Learning in this unit	To know that Technical Knowledge - A range of vehicles or products move by wheels and axels. To know how to Technical Knowledge - Explore and use wheels, axles and axle holders. Designing - Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Plan collaboratively through discussion. - Develop, model and communicate their ideas through drawings and mock-ups. Making - Select from and use a range of tools and utensils and equipment to perform practical tasks. - Select from a range of materials or fruit and vegetables according to their characteristics (colour, texture and taste). - Use simple finishing techniques suitable for the product they are creating. Evaluating - Evaluate their product by discussing how well it works and whether it meets design criteria.		- Show examples of wheeled products, stating the user and purpose, and labelling the main parts e.g. body, chassis, wheels, axles and axle holders. - Walk around the school building and grounds, recording how wheels and axles are used in daily life. - Demonstrate to children how wheels and axles may be assembled by using pegs as an axle holder underneath a piece of rectangular cardboard. - Use dowelling as an axle and place MDF wheels either side. Children assemble in small groups. - Discuss with the children that they will be making a vehicle to teach younger children about transport. - Think of different methods of transport <u>with four wheels</u> that the children could make. - Introduce a simple design criteria – it has to move smoothly, it has to have an appropriate design etc. - Show children that this will be made from a cardboard box and MDF wheels and dowelling. - Children to work in partners to design their vehicle and colour appropriately. - Children to make their wheel and axle product using their design ideas and criteria as an ongoing guide. - Finish using paint as a base design and add other collage materials if appropriate (cellophane for sirens, lights cut from felt etc) and glue on using PVA glue. - Encourage children to use knowledge from Y1 structures to add on extra pieces of junk modelling if appropriate. - Ask children to evaluate their final products against the original design criteria by placing a tick in a box next to each criteria.
Resources	- selection of toy vehicles with differently fixed axles - card boxes, card, cotton reels, plastic tubing, dowel, clothes pegs, paper sticks/dowel, paper/plastic straws, card discs, MDF wheels, wooden wheels - single hole punch, card drill, cutting mat, masking tape, PVA glue, paint, thin/thick paint brushes, felt tip pens, decorative paper, double sided sticky fixers, left/right handed scissors		
Learning Endpoints	- Know a variety of real-life items that use wheels and axles such as cars, vans, lorries, bicycles, etc. - The difference between fixed and moving axles - Design a product with wheels and axles and can explain the user (young children) and purpose (to teach about transport) - Draw an annotated sketch of their wheels and axles product and can label it with materials and key parts (wheel, axle, chassis). - Select from PVA glue, glue sticks, tape and scissors to cut and join materials (card, cardboard and paper). - Know if their vehicle is suitable for the intended user and purpose by whether it meets the design criteria.		

Project Title: Design, make and evaluate a salad for friends at school as part of a class picnic

Length of unit – 2 afternoon sessions and 1 deep learning day

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence	
Pre-learning	- Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. - Experience of cutting soft fruit and vegetables using appropriate utensils.	- sensory vocabulary: soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard - Skin - Seed - Pip - Core - Slicing - Peeling - Cutting, - Squeezing	- Learn about Annabel Karmel who creates healthy meals for young children. - Children examine a range of fruit/vegetables. Use questions to develop children's understanding e.g. What is this called? Who has eaten this fruit/vegetable before? Where is it grown? When can it be harvested? What are its taste, smell, texture and appearance? What will it look like if we peel it or cut it in half? What are the different parts called? - Provide opportunities for children to handle, smell and taste fruit and vegetables in order to describe them. - Discuss basic food hygiene practices when handling food including the importance of following instructions to control risk. - Demonstrate how to use simple utensils (peeler, grater, knife) and provide opportunities for the children to practise food-processing skills such as washing, grating, peeling and slicing. - Discuss different effects achieved by different processes. - Discuss healthy eating advice, including eating more fruit and vegetables.	
Learning in this unit	To know that Technical Knowledge - A range of fruit and vegetables can be farmed or grown at home. To know how to Technical Knowledge - Investigate a variety of fruit and vegetables to generate initial ideas. - Evaluate a range of fruit and vegetables to determine preferences. Designing - Generate ideas based on simple design criteria and their own experiences, explaining what they could make. - Plan collaboratively through discussion. - Develop, model and communicate their ideas through drawings and mock-ups. Making - Select from and use a range of tools and utensils and equipment to perform practical tasks. - Select from a range of materials or fruit and vegetables according to their characteristics (colour, texture and taste). - Use simple finishing techniques suitable for the product they are creating. Evaluating - Evaluate their product by discussing how well it works and whether it meets design criteria.		- Listen to the Teddy Bear's Picnic song and explain to the children that they are going to have their own teddy bear's picnic – however, they need to make sure that their teddies are eating healthy food. - Tell children that they are going to make salads – explain that these can be fruit salads, vegetable salads or a mixture of both. - Introduce simple design criteria – it has to taste nice, it has to look nice, etc. - Children design their salads by discussing potential ingredients collaboratively. - Draw a labelled picture of their final salad – discuss how the food can be arranged to look nice.	
Resources	range of fresh fruit and vegetables chopping boards, knives, peelers, graters, skewers, juicers, spoons, jugs, plates, bowls, aprons, plastic table covers, hand washing and washing-up facilities			- Children work in groups to prepare and assemble their salads. - Have tables set up in stations – washing, peeling, grating and slicing stations. - Children prepare ingredients as appropriate and assemble their salads to ensure they are presented appropriately. - Children need to follow basic hygiene standards – hands washed, hair up, jewellery off, work spaces cleared and using plates or chopping boards if available/ necessary. - During teddy bear's picnic, children eat a portion of their own salads. Use this to evaluate by ticking against the design criteria.
Learning Endpoints	- Annabel Karmel is a chef who specialises in healthy meals for babies and young children. - Different fruits and vegetables and how to describe them using sensory words. - Peelers, graters and knives can be used to prepare fruits and vegetables, and how to use these hygienically and safely - Why it is important to eat fruits and vegetables. - Design a healthy salad and explain the user (friends) and purpose (Teddy Bear's Picnic) - Draw an annotated sketch of their salad and label it with ingredients - Select from a variety of ingredients to create their salad, considering the taste, colour and general appeal of the ingredients. - Select from knives, graters, peelers and juices to prepare common fruits and vegetables. - Evaluate their own salad against the design criteria.			