Design and Technology

Jewell Academy Bournemouth
an Aspirations Academy

Concept and Skills Progression Overview

	Food	Structures	Textiles	Mechanisms	Electrical systems
6	**Celebrating culture and seasonality** Measure out, cut, shape and combine e.g. slice, chop and mix ingredients. Use appropriate utensils and equipment so that children can use them safely and hygienically. Consider texture, taste, appearance and smell. Evaluate the work as it progresses and the final process and the final product against intended purpose and reflecting on the design specification agreed.	**Frame Structures** Revisit of all skills/knowledge to date **Design, make and improve** a bridge choosing **own materials**, systems, strengthening materials etc. Measure in mm Use learning across the years	**Combining different fabrics shapes** Demonstrate a range of stitching techniques Develop skills of sewing textiles by joining right side together and making seams Develop skills of 2-D paper pattern making using grid or tracing paper to create a 3-D dipryl mock-up of a chosen product. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computeraided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	**Cams** Understand how mechanical systems such as cams, pulleys or gears create movement. Use tool safely and accurately, e.g. saws, clamps Accurately measure and mark out, cut and shape components.	***Taught through science lessons*** **More complex switches and circuits** Recap measuring , marking out, cutting and joining skills with construction materials that children will need to create their electrical product. Demonstrate and enable children to practise methods for making secure electrical connections e.g. using automatic wirestrippers, twist and tape electrical connections, screw connections and connecting blocks
5	**Celebrating culture and seasonality** Measure out, cut, shape and combine e.g. knead, beat, rub and mix ingredients . Use appropriate utensils and equipment so that children can use them safely and hygienically. Consider texture, taste, appearance and smell. Explore how to evaluate the work as it progresses and the final process and the final product against intended purpose and reflecting on the design specification agreed.	**Frame structures** Make a 3D photo frame from wood **Measuring cm** **Sawing** **Joining** using glue gun **Frame structures** Investigate portable and permanent frame structures e.g. tents, umbrellas. Research key events and individuals e.g. Steven Sauestre-a designer of the Eiffel tower. Compare the strengths of square frameworks with triangular frameworks. Demonstrate how paper tubes can be used to strengthen. Demonstrate accurate use of tools and equipment e.g. saws and glue guns.	**Combining different fabrics shapes** Demonstrate a range of stitching techniques and allow children to practise sewing two small pieces of fabric together, demonstrating the use of and need for , seam allowances. Finishing techniques e.g applique, embroidery, tye-dye. Investigate a selection of stitches, joins, fabrics, finishing techniques, fastening and purposes.	**Pneumatic system** Explore pneumatics and they work-tubes, syringe, air tight Introduce ways in which pneumatic systems can be used to operate levers and create movement. Investigate and evaluate familiar objects that use air to make them work e.g. bike pump,balloon and inflatable swimming aids. Teachers demonstrate how to assemble the systems using syringes, tubing, balloons and plastic bottles.	
4	**Healthy and varied diet** Learn to select and use a range of utensils and use a range of techniques as appropriate to prepare ingredients hygienically including measuring accurately as well as mixing , kneading, melting and baking.	**Shell Structures** How to make strong, stiff shell structures. Draw accurate net Measure accurately Demonstrate skills of scoring, cutting out and assembling, using own accurately drawn nets. Demonstrate and use different techniques for stiffening and strengthening their shell structures e.g. folding and shaping, corrugating, ribbing and laminating.	**Decorative techniques** Demonstrate a range of stitching techniques and allow children to practice Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. Produce annotated sketches. Finishing:Embroidery stitch e.g. cross stitch follow simple pattern	**Levers and linkages** Catapult	***Taught through science lessons*** **Simple circuits and switches** Design a product (rock stage) with e,g illuminated sign, noise making component, display lighting. How to make manually controlled, simple circuits with different batteries and different types of switches, bulbs and buzzers.
3	**Healthy and varied diet** Learn to select and use a range of utensils and use a range of techniques as appropriate to prepare ingredients hygienically including the bridge and claw technique, grating, peeling, chopping,slicing and spreading.	**Shell structures** How to make strong, stiff shell structures. Practise making nets out of card, joining flat faces with masking tape to create 3D shapes. Demonstrate skills of scoring, cutting out and assembling, using pre-drawn nets.	**2D to 3D shapes** Demonstrate a range of stitching techniques and allow children to practise sewing two small pieces of fabric together, demonstrating the use of and need for , seam allowances. Children consider whether fabric is suitable for the chosen purpose and user. Finishing techniques e.g. fabric pens/paint.	**Levers and linkages** Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project. Explore a range of lever and linkage mechanisms Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. Children should develop their knowledge and skills by replicating one or more of the teaching aids.	
2	**Preparing fruit and vegetables** Discuss and follow basic food hygiene practices when handling food including the importance of following instructions to control risks. Demonstrate how to use simple utensils and provide opportunities for children to experiment food processing skills such as washing, grating and peeling. Discuss healthy eating advice, including eating more fruit and vegetables and balanced diets.	**Free standing structures** Build and explore a variety of freestanding structures explore the foundation (base). Children understand how freestanding structures can be made stronger, stiffer and more stable by folding, twisting paper or card. Demonstrate measuring, marking out, cutting,shaping, joining and finishing techniques with a range of tools, new/reclaimed materials.	**Templates and joining techniques** Using prepared teaching aides (pre-cut templates), demonstrate the correct use of tools to mark out, tape, or pin the fabric to the template. Demonstrate appropriate joining techniques for children to practise e,g, running stitch and beginning to thread their own child plastic needle. Demonstrate examples of different finishing techniques e.g. fabric paint, glueing sequins.	**Wheels and axles** Teachers demonstrate how wheels and axles can be assembled as either fixed axles or free axles. Show different ways of making axle holders. With support ,children to draw and annotate diagrams of design Children are taught how to cut (not sawing)and joining materials correctly. e.g. tape , glue	
1	**Preparing fruit and vegetables**	**Free standing structures**	**Textiles**	**Sliders and levers**	

	Introduce basic food hygiene practices. Demonstrate how to use simple utensils and provide opportunities for children to experiment food processing skills such as washing, grating and peeling. Discuss healthy eating advice. Using the eatwell plate, model and talk about a balanced diet.	Build and explore a variety of freestanding structures using construction kits such as wooden blocks or plastic bricks. Children begin to understand how freestanding structures can be made stronger using a brick pattern. Demonstrate joining and strengthening of corners using a variety of materials ie: playdough, straws, tape, lolly sticks and corner strengtheners (triangles)	Explore different materials, what they look/feel like, why they are used? Demonstrate appropriate joining techniques e.g. gluing, staples Demonstrate examples of different finishing techniques e.g. fabric paint, gluing sequins.	Explore and evaluate a collection of everyday items that have moving parts including sliders and levers. Teachers demonstrate simple levers and sliders including correct use of tools. Understand the simple working characteristics of materials and components. Begin to understand the movement of simple mechanisms e.g.levers and sliders.	
R	Begin to understand basic hygiene practices. Using play to use simple utensils and kitchen appliances.	Safely use and explore a variety of materials. Use tools and techniques experimenting with colour, design, texture, form and function. Make use of props and materials when role playing characters in narrative and stories	Use tools and techniques experimenting with colour, design, texture, form and function.	Begin to explore everyday items with moving parts using levers and sliders. Share their creations explaining the process they have used.	