Arnside School Design Technology Progression Document

*Additional information, including further detail regarding the progression of designing, making and evaluating products, can be found in the Design Technology Associations Scheme of Work 'Projects on a Page' documents below. As a school, we have chosen to use this scheme to help us develop our own bespoke and progressive Design Technology Curriculum.

	EYFS **Nursery / Reception**	**KS1** **Yrs 1&2**	**Lower KS2** **Yrs 3,4&5**	**Upper KS2** **Yr 6**
Food Technology	**Snack time / circle time / adult led sessions** Examine a range of fruit/vegetables. Handle, smell and taste fruit and vegetables and describe them verbally. Try new things and talk about likes and dislikes. Always wash hands before cooking, tie back long hair and wear an apron. Use simple utensils and skills such as washing, peeling and slicing.	**Fruit and Vegetables – Layered Fruit Dish and Soup** Examine a range of fruit/vegetables. Handle, smell and taste fruit and vegetables in order to describe them through talking and drawing. Evaluate existing products to determine what the children like best; provide opportunities for the children to investigate preferences of their intended users/suitability for intended purposes. Know about and follow basic food hygiene practices when handling food including the importance of following instructions to control risk. Use simple utensils and skills such as washing, grating, peeling, slicing, squeezing. Know about healthy eating advice including eating more fruit and vegetables. Design, Make and Evaluate a layered fruit dish. Design, Make and Evaluate a type of soup.	**Healthy and Varied Diet -** **Packed Lunch Product and Hot Cross Buns** Investigate a range of food products. Carry out sensory evaluations on the contents of the food. Gather information about existing products available relating to your product. Visit a local supermarket and/or use the internet. Find out how a variety of ingredients used in products are grown and harvested, reared, caught and processed. 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, mixing, spreading, kneading and baking. Follow existing recipes to practise food preparation and cooking techniques. Use basic food hygiene practices when handling food. Design, Make and Evaluate a product for a packed lunch. Design Make and Evaluate a type of hot-cross bun.	**Celebrating Culture and Seasonality –** **Breads from around the world** Use first hand and secondary sources to carry out relevant research into existing products to include personal /cultural preferences, ensuring a healthy diet, meeting dietary needs and the availability of locally sourced/seasonal/organic ingredients. Carry out sensory evaluations of a variety of existing food products and ingredients relating to the project and present results in e.g. tables/graphs/charts and by using evaluative writing. Research key chefs and how they have promoted seasonality, local produce and healthy eating. Measure out, cut, shape and combine (e.g. knead, beat, rub and mix) ingredients. Use a range of utensils safely and hygienically. Practise techniques by following a basic recipe to prepare and cook a savoury food product. Ask questions about which ingredients could be changed or added in a basic recipe such as types of flour, seeds, garlic, vegetables. Consider texture, taste, appearance and smell. When using a basic dough recipe, explore making different shapes to change the appearance of the food product. Design, Make and Evaluate a type of bread.

	EYFS Nursery / Reception	KS1 Yrs 1&2	Lower KS2 Yrs 3,4&5	Upper KS2 Yr 6
Textiles	**Creative area provision enhancements** Use a range of threading boards and toys. Staple thin paper together to make hand puppets. Attach things using glue. Use a hole punch to cut holes.	**Template and joining Techniques - Finger Puppets** Investigate and evaluate existing finger puppets looking at fabrics, joining techniques, fastenings and finishing techniques. Pin the fabric to the templates or paper patterns. Draw round a given finger puppet template onto felt using chalk. Cut out the fabric pieces for the product. Practise using a range of joining techniques e.g. running stitch including threading own needle, stapling, lacing and gluing. Use running stitch to join the two fabric pieces. Practise using a range of finishing techniques e.g. sewing on buttons, 3-D fabric paint, gluing sequins, printing. Design, Make and Evaluate a finger puppet that can be used in the small world area.	**2D Shape to 3D Product -** **Holder for something with fastener.** Investigate a range of textile products that have a selection of stitches, joins, fabrics, finishing techniques, fastenings and purposes, linked to the product they will design, make and evaluate. Think about products from the past and what changes have been made in textile production and products e.g. the invention of zips and Velcro. Disassemble appropriate textiles products to gain an understanding of 3-D shape, patterns and seam allowances. Use a range of stitching techniques. Sew two small pieces of fabric together with a seam allowance. Use a textile product they have taken apart to create a paper pattern using 2-D shapes. Choose from a range of fabrics considering user and purpose. Experiment with and use a range of decorative finishing techniques e.g. appliqué, embroidery, fabric pens/paints, printing. Design, Make and Evaluate a holder with a fastener for something precious.	**Combining Different Fabric Shapes- Coastal Animal Souvenirs.** Investigate, analyse and evaluate a range of existing fabric animal souvenirs e.g. key rings, magnets, cuddly toys etc. Disassemble a product and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthen and stiffened, what fastenings have been used and why. Investigate properties of textiles through investigation e.g. exploring insulating properties, water resistance, wear and strength of textiles. Develop children's needle threading skills and experience of joining textiles using a range of stitches. If possible, allow children to use a sewing machine to join fabrics under close supervision. Sew and shape curved edges by snipping seams. Tack or attach wadding or stiffening. Know how to start and finish off a row of stitches. Make a 2-D paper pattern using a grid or tracing paper to create a 3-D dipryl mock-up of a chosen product. Pin a pattern on to fabric ensuring limited wastage, leaving a seam allowance and use different cutting techniques. Use computer-aided design (CAD) by using on-line pattern making software to generate pattern pieces. Investigate using art packages on the computer to design prints that can be applied to textiles using iron transfer paper. Design, Make and Evaluate a coastal souvenir that could be sold in a local shop.

	EYFS Nursery / Reception	KS1 Yrs 1&2	Lower KS2 Yrs 3,4&5	Upper KS2 Yr 6
Mechanisms	**Creative Area Provision** Use scissors to cut paper and use glue and masking tape to join paper. Make simple flaps and hinges with card and paper. Assemble vehicles with moving wheels using construction kits. Explore moving vehicles through play. Design, make and evaluate (verbally) junk / other models for a specified user and purpose. Paint / decorate junk / other models.	**Sliders and Levers –** **Moving Christmas Cards** Use scissors to cut out paper and card and use glue, tape, paper fasteners and split pins (pre-cut holes) to join paper and card. Explore, use and make sliders and levers. Design, make and evaluate a Christmas card, including a slider or Lever, for a close family member. **Vehicles** Explore and use wheels, axles and axle holders including fixed and freely moving axles. Use a saw to cut wooden batons. Use cardboard triangles and glue to build 3d structures. Use glue to attach wheels to wooden batons. Make fixed and freely moving axels. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. Design, Make and Evaluate a vehicle that could be used by a character in a story.	**Leavers and Linkages -** **Moving Posters** Use scissors to cut out shapes from paper and card accurately. Use a ruler to measure and draw required shapes. Use split pins and make holes using plasticine and a sharp pencil. Join paper and card with tape, including double sided, and glue with increasing accuracy. Identify a lever, linkage, input, output, fixed and unfixed pivots. Explore and make a range of levers and linkages. Design, make and evaluate a poster, including a level and linkage, to advertise a current event. **Product / Event Advertising using a CAMS mechanism.** Make models using different types of CAMs kits. Use a hand drill to make holes for off centre CAMS. Develop measuring, marking, cutting, shaping and joining skills using hacksaws, the woodwork bench clamps, card triangles and to construct wooden frames or card housings, as appropriate. Use tools and equipment safely and accurately. Design, Make and Evaluate a mechanism that could be used to advertise a new product or book or a upcoming event.	**Gears and Pullies – Bridges** Investigate, analyse and evaluate existing everyday products and existing or pre-made toys that incorporate gear or pulley systems. Use videos and photographs of products that cannot be explored through first-hand experience. Using a construction kit, explore combinations of two different size gears meshed together. Investigate the direction and speed of rotation focusing on how the size of the driver gear affects the speed of the follower gear. Build a working circuit that incorporates a battery, a motor and a handmade switch, such as a reversing switch. Demonstrate the accurate use of tools and equipment including cutting and stripping wire, and making secure electrical connections. Know about the dangers of mains electricity. Draw a pictorial representation of the circuit or draw a circuit diagram using correct symbols. Develop measuring, marking, cutting, shaping and joining skills using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. Design, Make and Evaluate a new bridge / addition to the existing viaduct that would allow trains, walkers and cyclists to use it.

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Electronics			**Series circuits with switches – Spring Fair Games or other suitable design brief** Discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products, including those which are commercially available. Investigate examples of switches, including those which are commercially available, which work in different ways e.g. push-to-make, push-to-break, toggle switch. Make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers. Find faults in simple circuits. Use a simple computer control program with an interface box or standalone control box to physically control output devices e.g. bulbs and buzzers. Make a variety of switches by using simple classroom materials e.g. card, corrugated plastic, aluminium foil, paper fasteners and paper clips. Encourage children to make switches that operate in different ways. **Simple Programming and Control** As above plus: Use of a simple computer control program using an interface box, microcontroller or standalone control box to control output devices, e.g. bulbs and buzzers, using a repeating sequence of instructions. Design, Make and Evaluate a Spring Fair Game or other game that incorporates a series circuit with a switch.	**Monitoring and Control – Christmas Fair Games or other suitable design brief** Know about and investigate a number of products that respond to changes in the environment using a computer control program. Investigate sensors such as light dependent resistors (LDRs) and a range of switches such as push-to-make, push-to-break, toggle, micro and reed switchs to gain an understanding of how they are operated by the user and how they work. Practise using different input and output devices. Practise methods for making secure electrical connections e.g. using wire strippers, twist and tape connections, screw connections, crocodile clips and connecting blocks. Explore a range of electrical systems that could be used to control their products, including a simple series circuit, a series circuit with two output devices controlled by one switch and, where appropriate, parallel circuits where two output devices are controlled independently by two separate switches. Write and modify computer control programs that include inputs, outputs and decision making. Test out the programs using electrical components connected to microcontrollers, interface boxes or standalone boxes. Design, Make and Evaluate a Christmas Fair Game or other product that incorporates an electrical circuit which uses a computer control program.