DT Overview

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food	**Spring 2** **Outcome – Healthy Fruit Smoothie** **Skills** **Investigate and evaluate** To taste and evaluate a range of fruit and vegetables to determine the intended user's preference Children handle a range of fruit and vegetables to describe them through talking and drawing Children smell /taste a range of fruit and vegetables to describe them through talking and drawing Children evaluate existing smoothie products to determine what they like the best **Design** Design appealing product for a particular user (Y2/3) based on simple designs criteria Generate initial ideas through investigating a variety of food and vegetable Communicate ideas through drawings and talk. **Focussed Tasks** Cut fruit and vegetables Weigh fruit and vegetables Peel fruit and vegetables (teacher to use judgement-maybe peel fruit) Make smoothies **Make** Use simple utensils and equipment (to peel, cut, chop, grate and slice) Select from a range of fruit and vegetables Consider the characteristics of fruits and evgetables: colour, texture and taste. **Evaluate** Evaluate ideas and finished product against design. Evaluate finished product against the intended user's purpose. **Knowledge** **Technical Knowledge and understanding** Understand where a range of fruit and vegetable come from (farm, home grown) Understand and use principle of healthy and varied diet Understand how fruit and vegetable are part of the *'Eat Well plate'* Know and use technical and sensory vocabulary relevant to the project.	**Summer 1** **Outcome – Chocolate cupcakes** **Skills** **Investigate and evaluate** To taste and evaluate a range of chocolate treats to determine the intended user's preference Children taste a range of chocolate products to describe them through Drawing Provide opportunities for the children to investigate preferences for their intended user/suitability for intended purposes. **Design** Design appealing product for a particular user (Y2/3) Generate ideas based on a simple design criteria Generate initial ideas through investigating a variety of chocolate treats (biscuits, cakes, bars) Develop, model and communicate ideas through drawings. **Focussed Tasks** Measure ingredients Mix ingredients Make biscuits **Make** Use simple utensils and equipment (to roll, mix, sieve, mix) Select from a range of products to be added to the chocolate treat (nuts, choc chips etc) basing decision on texture, taste and presentation. **Evaluate** Evaluate ideas and finished product against design. Evaluate finished product against the intended user's purpose. **Knowledge** **Technical Knowledge and understanding** Understand why measuring ingredients is important Understand why we need to mix ingredients Understand and use principle of healthy and varied diet Understand why chocolate treats should be eaten **only** occasionally Know and use technical vocabulary relevant to the project.	**Summer 2** **Outcome – Healthy Sandwiches** **Skills** **Investigate and evaluate** To taste and evaluate a range of sandwiches to determine personal preference Children taste a range of sandwich fillings (vegetables) products to describe them through annotated drawings **Design** Design appealing product for a particular user (personal) Generate ideas based on a simple design criterion Generate initial ideas through investigating a variety of fillings (radish, cucumber, tomato etc) Develop, model and communicate ideas through annotated drawings. **Focussed Tasks** Discuss safe food hygiene and utensil use with children Cut, grate, spread fillings Slice vegetable/fruit to make sauce Shape sandwiches **Make** Use simple utensils and equipment (to Cut, slice, grate, spread) Select from a range of products to be added as fillings (nuts, cheese, cucumber etc) basing decision on texture, taste, health value and presentation. **Evaluate** Evaluate ideas and finished product against design. Evaluate finished product against the intended user's purpose. **Knowledge** **Technical Knowledge and understanding** Understand why choice of bread/sandwich important to health Understand and use principle of healthy and varied diet Understand why shape of filling impacts on presentation and consumption Know and use technical vocabulary relevant to the project.	**Spring 1** **Outcome – Viking Soup** **Skills** **Investigate and evaluate** To taste and evaluate a range of soups to determine personal preference To carry out a sensory evaluation of a variety of existing food products To carry out a sensory evaluation of a variety of ingredients relating to the project. (herbs, vegetables) **Design** Design an appealing product for a particular user Generate innovative ideas based on discussions with peers and adults Explore a range of ideas and make design decision to develop a final product linked to the Purpose and User Use words, sketches, ICT as appropriate to develop and communicate ideas. **Focussed Tasks** Measure out ingredients Cut, grate, slice and shape ingredients Use combining methods (beat, rub ingredients) Demonstrate how to use appropriate utensils for given tasks **Make** Write a step by step recipe: include ingredients and utensils Select appropriate utensils and equipment (to Cut, slice, blend, spread) Select from a range of products to be added to the soup (carrots, leeks) basing decision on texture, taste, health value, presentation and purpose (Viking recipe). **Evaluate** Evaluate ideas and finished product against design. Evaluate finished product against the intended user's purpose. **Knowledge** **Technical Knowledge and understanding** Have knowledge and understanding about food hygiene Have knowledge and understanding about nutrition Have knowledge and understanding about Healthy eating and varied diet To understand techniques to produce texture and thickness in soups To understand how to use a number of different utensils and equipment To understand techniques for measuring out	**Summer 1** **Outcome – Campfire Orange Cakes** **Skills** **Investigate and evaluate** -To understand how key chefs have influenced eating habits to promote varied and healthy diets. -Children use varied sources (first and secondary) to carry out research including: Ensuring a healthy diet Meeting dietary needs Availability of locally sourced /seasonal /organic ingredients **Design** Generate initial ideas through investigating a variety of cakes Design appealing product for a particular user (survivors or people cooking outdoors) Pupils develop a design brief/ criterion for design specification Develop, model and communicate ideas through drawings/ words and annotated sketches. Using dough recipe to practise cooking on a fire **Focussed Tasks** Measure ingredients accurately Rub, knead, beat ingredients Mix ingredients Demonstrate how to use utensils/equipment that children use safely and hygienically Understand campfire rules **Make** Select using appropriate utensils and equipment accurately Measure and combine appropriate ingredients Make, decorate/present food product appropriately for user purpose **Evaluate** Evaluate ideas and finished product against design. Evaluate finished product against the intended user's purpose. **Knowledge** **Technical Knowledge and understanding** -Know how to use utensils and equipment including heat sources (campfire) to prepare and cook food. -Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary relevant to the project.	**Autumn 1** **Outcome - Bread** **Skills** **Investigate and evaluate** -To understand how key chefs have influenced eating habits to promote varied and healthy diets. -Children use varied sources (first and secondary) to carry out research including: Cultural preferences Ensuring a healthy diet Meeting dietary needs Availability of locally sourced /seasonal /organic ingredients **Design** Generate initial ideas through investigating a variety of breads Design appealing product for a particular user (peers and parents) Generate innovative ideas linked to bread through research / peer /adult discussion Pupils develop a design brief/ criterion for design specification Develop, model and communicate ideas through drawings/ words and annotated sketches. Using dough recipe explore making different shapes to change the appearance of the product. **Focussed Tasks** Measure ingredients accurately Rub, knead, beat ingredients Mix ingredients Demonstrate how to use utensils/equipment that children use safely and hygienically **Make** Write step by step recipe including ingredients/equipment/utensils Select using appropriate utensils and equipment accurately Measure and combine appropriate ingredients Make, decorate/present food product appropriately for user purpose **Evaluate** Evaluate ideas and finished product against design. Evaluate finished product against the intended user's purpose. **Knowledge** **Technical Knowledge and understanding** -Know how to use utensils and equipment including heat sources to prepare and cook food. -Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary relevant to the project.

Additional H4L cooking Linked to the curriculum	A1 English – Make Porridge **S2 Harvest from Science Garden – Veg mash**	**A1 English – Make a sandwich for Granny** **A2 Geography – stir fry**	**Sp1 History – Flat bread** **Sp2 History – Greek salad**	**A1 History – pizzas** **Sp2 Geography - curry**	**A2 Science – Popcorn/pancakes** **Sp2 Geography – Ratatouille**	**A2 English – Lavender Scones** **Sp1 Science – Make a healthy plate**
Mechanisms		**Autumn 1** **Outcome – Moving picture book** **Skills** **Investigate and evaluate** Children explore and evaluate a collection of books and everyday products that have moving parts, including those with levers and sliders. e.g. *What is it? Who is it for? What is it for?* Use questions to develop children's understanding e.g. *What do you think will move? How will you make it move?* Introduce and develop vocabulary e.g. lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out. **Design** -Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through drawings and mock-ups with card and paper. **Focussed Tasks** Demonstrate simple levers and sliders Following teacher demonstration children use correct tools and materials replicate the slider and lever Encourage children to sketch out characters or scenes (differentiate for some children) Discuss information and communication technology opportunities such as clip art, word processing, paint or simple drawing programs. **Make** Plan by suggesting what to do next. Select and use tools, explaining their choices, to cut, shape and join paper and card. Use simple finishing techniques suitable for the product they are creating. **Evaluate** Evaluate their finished product, communicating how it works and how it matches their design criteria, including any changes they made.		**Summer 1** **Outcome – Model to show the Water Cycle** **Skills** **Investigate and evaluate** Children investigate, analyse and evaluate products which have a range of lever and linkage mechanisms (wheel barrow, scissors (Levers), tool boxes, wet clothes hangers (linkages) Use questions to develop children's understanding e.g. *What part moved and how did it move? How do you think the mechanism works?* . **Design** Discuss the purpose of the products with the User in mind Children to generate a range of ideas, encouraging creative responses Agree on design criteria Use annotated sketches and prototypes to develop, model and communicate their ideas. Children to consider the main stages in making the product **Focussed Tasks** Teacher demonstrate making levers and linkages Following teacher demonstration children use correct tools and materials replicate the levers and linkages Children learn different methods to make linkages and lever **Make** Order the main stages of making. Make sure children are clear on the order of the different stages of making Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. Select from and use finishing techniques suitable for the product they are creating. **Evaluate** Evaluate their finished product, communicating how it works and how it matches their design criteria, including any changes they made. **Knowledge** **Technical Knowledge and understanding** Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project.		

		Spring1 **Outcome – Snow Plough** **Skills** **Investigate and evaluate** -Using construction kits with wheels and axles, make a product that moves. -Demonstrate how wheels and axles may be assembled as either fixed axles or free axles. **Design** -Design ideas within an authentic context. -Identify a user and purpose for the product and generate simple criteria. -Develop and communicate their ideas as appropriate e.g. through talk and drawing. Talk about, evaluate and share ideas with other children/adults. **Focussed Tasks** -Show different ways of making axle holders and stress the importance of making sure the axles run freely within the holders. -mark out, hold, cut and join materials and components correctly -Using samples of materials and components when designing and making, - assemble some examples of wheel, axle, axle holder combinations. **Make** -Make wheel and axle product using design ideas and criteria as an ongoing guide. -Discuss how adding finishing techniques to product with reference to design ideas and criteria -Discuss information and communication technology opportunities such as clip art, word processing, paint or simple drawing programs. **Evaluate** Evaluate their finished product, communicating how it works and how it matches their design criteria, including any changes they made.				

Structures	**Summer 2** **Outcome – Free standing Bridge** **Skills** **Investigate and evaluate** Explore a range of free-standing structures **Design** Generate ideas based on a simple design criteria Generate ideas based on own experiences, explaining what they could make Develop, model and communicate ideas through drawings and mock-ups using card and paper. **Focussed Tasks** Measure materials (Measuring) Cut materials (Cutting) Join materials (Joining) Folding material for additional support **Make** Select and use tools (to cut and join) explaining their choice Select new and reclaimed materials and construction kits to build their structures Use suitable finishing techniques suitable for their structure **Evaluate** Evaluate their product by discussing how well it works in relation to the Purpose and the User and whether it meets the original design criteria. **Knowledge** **Technical Knowledge and understanding** Know how to make free-standing structures stronger Know how to make free-standing structures stiffer and more stable Know and use technical vocabulary relevant to the project		**Spring 1** **Outcome - Create a Sarcophagus** **Skills** **Investigate and evaluate** Explore a range of shell structures including packaging Explore a range of products looking at the material, components and techniques they have used *Q: What is the purpose of this shell structure: protecting, presenting or containing?* **Design** Generate realistic ideas based on a design criteria Generate ideas collaboratively in discussion based on the User and Purpose of product Develop ideas through analysing existing products and use: Annotated sketches Prototypes to communicate ideas. **Focussed Tasks** Pupils score cards Pupils cut pre-drawn nets Pupils assemble pre-drawn nets Pupils join flat surfaces with masking tape Pupils learn strengthening techniques: shaping, folding laminating, ribbing, corrugating **Make** Select and use tools (to cut and join) explaining their choice Select/explain materials according to function, properties and aesthetics Use suitable finishing techniques suitable for the product they are creating **Evaluate** Evaluate their product by discussing how well it works in relation to the Purpose and the User and whether it meets the original design criteria. **Knowledge** **Technical Knowledge and understanding** Develop and use knowledge of how to construct how to make strong, stiff shell structures Develop and use knowledge of nets of cubes and cuboids .and where appropriate, more complex 3D shapes Know and use technical vocabulary relevant to the project			**Summer 2** **Outcome – Create a frame Structure** **Skills** **Investigate and evaluate** Explore a range of portable and permanent frames structures (tents, umbrellas, bus shelters) Investigate why each structures meets users need Investigate how bus shelter design differs from the lighter tent and umbrella-consider material **Design** Generate realistic ideas collaboratively based on a design criteria for an appealing, functional product for purpose and users Produce: Discuss the brief of designing a small-scale frame structure Pupils should be encouraged to produce innovative ideas Pupils produce a detailed plan with step-by-step plan listing tools and materials Pupils sketches should be annotated with notes in order to communicate ideas Pupils should make their product with accuracy evaluating continually against purpose and user **Focussed Tasks** **Techniques for frame structures** Pupils use straws and paper fasteners to build 2D framework they then compare the strength of square frame with triangular frames. Pupils learn to make reinforced tubes by rolling paper diagonally- then using pipe cleaners-tape. Use these to build cuboids and pyramids.  **Skills for Wooden frames** Pupil learn to use junior hacksaw and G clamps Pupils use bench hooks and square section wood Pupils use a hand drills to construct wooden frames **Joining Framework** Pupils learn to joining by using paper straws Pupil use square sectioned wood to join **Make** Make a clear plan of what needs to be done and what resources are required Select and use appropriate tool to accurately measure, mark, cut construction materials for structure Select and use appropriate tool to accurately shape and join construction materials for structure Select/explain materials according to function, properties and aesthetics Use suitable finishing techniques suitable for the product they are designing and making

						Evaluate Evaluate their product against their design specification Evaluate their product against their design Purpose and User Identify strengths and areas of development by carrying out test Consider others' views. Understand how a key event/individual has influenced the development of the chosen Product

Textiles	**Autumn 2** **Outcome – Create a puppet** **Skills** **Investigate and evaluate** Explore a range of puppets **Design** Design a product for a chosen user Design a product for a chosen purpose Generate ideas based on simple design criteria. Communicate ideas (either or) through talking, drawing, templates, mock-ups **Focussed Tasks** Mark out fabric Pin fabric Cut fabric -Use **running stitch** -Practise gluing -Practise stapling **Make** Select from and use a range of tools and equipment (to marking out, cut, join and finish) Select from and use textiles according to their characteristics. **Evaluate** Evaluate their product by discussing how well it works in relation to the purpose and the user and where it meets design criteria. **Knowledge** **Technical Knowledge and understanding** Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.		**Spring 2** **Outcome – Make a sash for the production** **Skills** **Investigate and evaluate** Explore a range of puppets **Design** Design a product for a chosen user Design a product for a chosen purpose Generate ideas based on simple design criteria. Communicate ideas (either or) through talking, drawing, templates, mock-ups **Focussed Tasks** Mark out fabric Pin fabric Cut fabric -Use running stitch -Practise gluing -Practise lacing -Practise stapling **Make** Select from and use a range of tools and equipment (to marking out, cut, join and finish) Select from and use textiles according to their characteristics. **Evaluate** Evaluate their product by discussing how well it works in relation to the purpose and the user and where it meets design criteria. **Knowledge** **Technical Knowledge and understanding** Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.		**Spring 2** **Outcome – Flag for a parade** **Skills** **Investigate and evaluate** Explore and evaluate a range of existing products which have been produced by combining fabric shapes. Investigate work by designers and their impact on fabrics and products **Design** Generate innovative ideas by carrying out research, surveys Develop, model and communicate ideas through talking, drawing, templates, Communicate ideas through mock-ups and prototypes and, where appropriate, **computer-aided design.** • Design purposeful, functional, appealing products for the intended user -Design should be fit for purpose based on a simple design specification or criteria **Focussed Tasks** Thread needles Join textiles running, back, **overcast, hemming stitch, slip stitch** (must be progressive from Y1 and 2) Use a range of cutting techniques Tack or attach wadding or stiffening Start and finish off a row of stitches. Use computer-aided design (CAD) (if possible) Remind/teach how to pin a pattern on to fabric ensuring limited wastage, **Make** Produce detailed lists of equipment relevant to task Produce detailed list of fabrics relevant to their tasks. Formulate step-by-step plans Select from and use a range of tools and equipment Use suitable finishing techniques. Work within the constraints of time, resources and cost. **Evaluate** Compare the final product to the original design specification. Test products with intended user Evaluate the quality of the design, manufacture Evaluate the functionality and fitness for purpose. Consider the views of others to improve their work. **Knowledge** **Technical Knowledge and understanding** A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate.	

Electronics				**Spring 2** **Outcome – Light up Map of UK** **Skills** **Investigate and evaluate** Discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products, Children Investigate, analyse and evaluate existing everyday products- which use a circuit to produce light- torches, toys. Use videos and photographs of products that cannot be explored through first-hand experience- bedroom lamps, irons, mobile phones Children could 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. **Design** Generate and develop, then communicate realistic ideas through discussion Show ideas through annotated sketches, cross-sectional and exploded diagrams. Gather information about what is need and wants Develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. electrical components. (use Computer Aided Design to support children) **Focussed** Tasks (many of these aspects will be introduced in science unit) Recap with children how to make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers. Use a simple computer (CAD) to design a circuit-Purple Mash has design features Ask the children to 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 e.g. when you press them, when you turn them. Ask the children to test their switches in a simple circuit. **Make** Order the main stages of making. Select tools and equipment to cut, shape, join and finish Select and use materials and components according to their functional properties and aesthetic (look) qualities. **Evaluate**	**Spring 1** **Outcome – Create a Moon Buggy** **Skills** **Investigate and evaluate** Children Investigate, analyse and evaluate existing everyday products- such as different types of toy cars that incorporate gear or pulley systems. Use videos and photographs of products that cannot be explored through first-hand experience. Children could research and, if possible, visit engineering and manufacturing companies that are relevant to the product they are designing and making e.g. Jaguar Land Rover, JCB, local companies (possible visits in future years) **Design** Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. Develop a simple design specification to guide their thinking. Develop and communicate ideas through discussion Communicate ideas through detailed, annotated drawings from different views and/or exploded diagrams Drawings should indicate the design decisions made, including the location of the mechanical and electrical components. (use Computer Aided Design to support children **Focussed Tasks** 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 for cutting and stripping wire, and making secure electrical connections. **Remind children about the dangers of mains electricit**y. Cutting accurate measures of wood for chassis Draw a pictorial representation of the circuit or draw a circuit diagram using correct symbols. **Make** Produce detailed lists of tools, equipment and materials needed Formulate step-by-step plans and, if appropriate, allocate tasks within a team. Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost **Evaluate** Compare the final product to the original design specification. Test products with intended user Critically evaluate the quality of the following: Design Manufacture Functionality fitness for purpose. Consider the views of others to improve your work. **Knowledge**	**Summer 2** **Electronic Engineering** Programmable alarm system to protect a vulnerable London building (e.g. the crown jewels in the Tower of London)

				Compare the final product to the original design specification. Test products with intended user Identify the strengths and areas for improvement in their work. **Knowledge** **Technical Knowledge and understanding** Understand and use simple electrical system in their products **(simple circuit)** Incorporate switches, bulbs into the circuit Apply their understanding of computing to program and control their products (Purple Mash). Know and use technical vocabulary relevant to the project.	**Technical Knowledge and understanding** Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.	