# Design Technology

| Vision |
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| At South Farnborough Junior School, our motto is: Embracing our values today… to be a successful part of the world tomorrow!<br><br>At South Farnborough, our aim is for children to think like designers! We want them to develop a rigorous understanding of the importance of design and technology to shape society and the future. By encouraging them to think creatively, they will have the necessary knowledge and skills they need to become the designers of our every changing society! |
| **Implementation** |
| At South Farnborough Junior School, Design and Technology is taught as part of a broad and balanced curriculum. We provide an inclusive environment in which every child is able to develop a wide range of skills and knowledge through exciting and engaging units, whilst taking pride in their outcomes.<br><br>Each unit teaches an aspect of DT, often with a specific focus. The aim is to revisit different areas of Design and Technology through different units so that children can build upon prior knowledge, and know more and remember more. As they build their skills and knowledge base, they can combine them to ensure they are proficient in designing, creating and evaluating wide range of products.<br><br>Mechanical systems:<br><br>In Year 3, there is a particular focus on mechanical systems through levers and linkages and pneumatics. This allows the children to become used to a variety of strategies to manipulate designs, starting with strategies they are more familiar with and building to pneumatics which they may be less familiar with. They revisit this in Year 5 in their unit on cams and pulleys where they use the skills they have learnt in a more sophisticated context.<br><br>Food and nutrition:<br><br>Healthy eating is taught in Lower school so that we are revisiting aspects of our science and PE curriculum, encouraging our children to make healthy choices and making links with dishes they are likely to be more familiar with. Then, in Upper School, the children study and make food using culture and seasonality and a stimulus. This allows them to see how food design can change for specific cultures, seasons or festivals.<br><br>Computer –Aided design and textiles: |

In Year 4, the children use computer-aided design to create packaging. This is revisited in Year 6, when the children combine this with textiles to design and create costumes for the school play. This allows children to explore how, often, design is done through computing skills.

Electrical systems:

In Year 4, the children learn how to create a product, which combines a structure with an electrical circuit. This allows them to explore different purposes for products and helps them to appreciate more complex designs, which prepares them for their design tasks in Upper School.

Structures:

In Year 5, the children consider the lessons they have learnt through their mechanical/electrical systems learning to create a secure structure, which can be tested. They are likely to have considered some joining techniques and strategies to create a strong structure in previous units and this allows them to consider this knowledge and embed it, whilst exploring more techniques.

Throughout topics, children explore the thread of why design is needed in order to understand the bigger impact of design, rather than simply making and evaluating a product.

In addition to our quality first classroom practice, including differentiation, use of resources, assessment and so on, our MTP and STP covers important details, which are unique to us and we feel have an impact on the way we successfully implement our curriculum:

| Big Picture- *What is our end goal?* | Prior Knowledge- *Links to threads and previous learning to make links.* | Misconceptions- *How can we pre-empt where children may struggle to make the most of learning time?* | Values/SMSC- *Embedding personal development learning within our curriculum to achieve our school vision.* | Cultural Capital- *Visitors, themed days, workshops, school trips.* | Explain, Change, Create- *We challenge our children through a mastery approach.* |
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| Unit Overview | | | |
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| **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Levers and Linkages**<br>The children learn how to use levers and linkages to design, make and evaluate a pop up card for an intended purpose and audience.<br><br>**Food and Nutrition**<br>The children learn about healthy eating and use this knowledge to design, make and evaluate a healthy sandwich.<br><br>**Textiles**<br>The children learn to design, make and evaluate a pencil holder or case with themselves or other children as their intended audience. They practise a range of joining techniques including stitching and use this experience as part of their design. | **Food and Nutrition**<br>The children design, create and evaluate a healthy salad, which would appeal to an adult as a lunch option.<br><br>**Computer-Aided Design Shell Structures**<br>The children design and make packing on the computer and evaluate its success in appeal to their target audience.<br><br>**Program Control**<br>The children design and make lighthouses which light up, linked to their electricity work in science. They evaluate whether their design was successful in getting the lighthouse to light up. | **Mechanical Systems: Cams, Pulleys and Gears**<br>The children design and make a moving toy, which could be sold at the Christmas fayre.<br><br>**Frame Structures**<br>The children design and make successful and robust shelters. They evaluate their success by using success criteria.<br><br>**Food and nutrition - Culture and Seasonality**<br>The children use their knowledge of the Ancient Greeks to design and create an appropriate mezze board, which would have appealed to the Ancient Greeks. | **Food and Nutrition - Culture and Seasonality**<br>The children design and make a dish using their knowledge of seasonal ingredients for Christmas.<br><br>**Computer-Aided Design: Textiles**<br>The children use the computer to aid them in designing and making costume or props for the Year 6 production. |

| Year | Unit 1 | |
|---|---|---|
| Year 3 | **Levers and Linkages**<br><br>The children learn how to use levers and linkages to design, make and evaluate a pop up card for an intended purpose and audience. | |
| | **Why this?**<br><br>Knowledge of simple linkages and levers will help children understand how you can impact a design's movement in a familiar way. They can see this through infant books, which are likely to be familiar to them.<br><br>**Why now?**<br><br>All children are likely to be familiar with cards. This allows them to explore new skills for linkages and levers within a familiar context. In the summer, they will explore how to make something move using pneumatics, which is less likely to be familiar to them. | |
| | **Substantive Knowledge** | **DT Skills** |
| | - Key vocabulary: mechanism, lever, linkage, pivot, slot, system, input, process, output, user, purpose, function, design criteria.<br><br>-Children investigate, analyse and evaluate books and, where available, other products which have a range of lever and linkage mechanisms.<br><br>- Develop a design within a context, which is authentic and meaningful.<br><br>- Understand the purpose of the products they will be designing and making and who the products will be for<br><br>- Develop, model and communicate their ideas.<br><br>- Learn different linkage and lever techniques and choose which is most suitable for their design.<br><br>- Evaluate the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed. | -Design a card by using a design brief with an intended purpose and audience.<br><br>-Make their product, mainly unaided.<br><br>-Evaluate the success of their project with guidance. |

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| **Learning Journey Question for Assessment** | Children can design, make and evaluate their own card, using an intended purpose, e.g. a Christmas card, for an intended audience, e.g. their parents. |

**Unit 2**

**Food and Nutrition**

The children learn about healthy eating and use this knowledge to design, make and evaluate a healthy sandwich.

**Why this?**

Children are likely to be familiar with sandwiches. This will help them when preparing lunches with their parents at home, encouraging them to make healthy choices which they will enjoy and where they are the intended audience.

**Why now?**

In Year 4, they will make a healthy salad, intended for adults. This unit will help them to design a healthy sandwich, which they would enjoy before progressing to an unfamiliar audience.

| **Substantive Knowledge** | **DT Skills** |
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| -Name of products, names of equipment, utensils, techniques and ingredients.<br><br>-Key vocabulary for food: texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, fresh, savoury, hygienic, edible, grown.<br><br>-Discuss the purpose of the products that the children will be designing, making and evaluating and who the products will be for.<br><br>-Develop and agree on design criteria with the children within a context that is authentic and meaningful. This can include criteria relating to healthy eating and a varied diet e.g. What do you need to consider to make it part of a balanced diet? How do we select the ingredients? How could we make it appealing to eat? | -Design an edible, healthy sandwich using appropriate ingredients, which is appealing to the target audience independently.<br><br>-Make the sandwich safely, without much adult involvement.<br><br>-Make the sandwich safely and hygienically.<br><br>-Evaluate whether their sandwich was healthy, appealing and suitable for children. |

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| | -Ask children to consider the main stages in making the food product, before preparing/cooking the product including the ingredients and utensils they will need.<br><br>-Evaluate as the assignment proceeds and the final product against the intended purpose and user, reflecting on the design criteria previously agreed. Consider what others think of the product when considering how the work might be improved. | |

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| **Learning Journey Question for Assessment** | The children design a healthy sandwich for children at South Farnborough Junior School. |

**Unit 3**

**Textiles**

The children learn to design, make and evaluate a pencil case or holder for themselves or their peers.

**Why this?**

Children will be familiar with pencil cases and this provides a real-life situation which they are familiar with. They will have the opportunity to explore different joining techniques including sewing which boost fine motor skills and also teaches an important skill for the future.

**Why now?**

Children will have experienced textiles in key stage 1 and will already know some joining techniques which they can develop and apply to this unit. They can apply this to a real-life situation.

| **Substantive Knowledge** | **DT Skills** |
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| -Key vocabulary: fabric, fastening, compartment, stitch, seam, template, finishing technique<br>- Designing: know what makes a realistic design<br>- Making: know how to use a range of tools for joining. Recognise the qualities of different fabrics.<br>-Evaluate the final products against the intended purpose and with the intend | -Design a realistic product taking account of the function, purpose and user<br>-Make: learn how to use different joining techniques and select appropriate ones to fit the product.<br>-Evaluate whether the pencil case is appealing for the intended audience. |

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| | **Learning Journey Question for Assessment** | Can you create a pencil case using an appropriate joining technique? It appeals to the chosen audience and fits its function and purpose. |

| **Year** | **Unit 1** | |
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| **Year 4** | **Food and Nutrition**<br><br>The children design, create and evaluate a healthy salad, which would appeal to an adult as a lunch option. | |
| | **Why this?**<br><br>The children can broaden their understanding of healthy foods by designing a salad, which they are likely to have seen, but for adults. Therefore, challenging them to think about a wider range of more sophisticated ingredients. It links with their healthy eating topic in science.<br><br>**Why now?**<br><br>They learnt to make healthy sandwiches in Year 3 and now they can use similar skills, but for a different, less familiar audience. | |
| | **Substantive Knowledge** | **DT Skills** |
| | *Revisit some knowledge from Y3 within a new context.*<br><br>-Name of products, names of equipment, utensils, techniques and ingredients.<br><br>-Key vocabulary for food: texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, fresh, savoury, hygienic, edible, grown.<br><br>-Discuss the purpose of the products that the children will be designing, making and evaluating and who the products will be for.<br><br>-Develop and agree on design criteria with the children within a context that is authentic and meaningful. This can include criteria relating to healthy eating and a varied diet e.g. What do you need to consider to make it part of a balanced diet? How do we select the ingredients? How could we make it appealing to eat? | *Revisit skills from Year 3 within a new context.*<br><br>-Design an edible, healthy salad using appropriate ingredients, which is appealing to the target audience independently.<br><br>-Make the salad safely, without much adult involvement.<br><br>-Make the salad safely and hygienically.<br><br>-Evaluate whether their salad was healthy and appealing to adults. |

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| | -Ask children to consider the main stages in making the food product, before preparing/cooking the product including the ingredients and utensils they will need.<br><br>-Evaluate as the assignment proceeds and the final product against the intended purpose and user, reflecting on the design criteria previously agreed. Consider what others think of the product when considering how the work might be improved. | |
| | **Learning Journey Question for Assessment** | The children can design and create a healthy salad, which appeals to an adult audience. |
| | **Unit 2** | |
| | **Computer-Aided Design Shell Structures**<br><br>The children design and make packing on the computer and evaluate its success in appeal to their target audience. | |
| | **Why this?**<br><br>The children can consider the impact packaging has upon the marketing of products and how this also needs to appeal to a specific audience but has a different purpose. This also provides children with an opportunity to practise using computing skills to design.<br><br>**Why now?**<br><br>The children have now designed a number of products at school. This shows them the impact packaging has as if a product does not have good packaging, it is unlikely to appeal and may not sell. The packaging also needs to be fit for purpose for the product. Additionally, the children now have the computing skills necessary to be successful at the task. | |
| | **Substantive Knowledge** | **DT Skills** |
| | -Key vocabulary: shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity<br><br>marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, font, lettering, text, graphics.<br><br>-Simple drawing software such as Techsoft 2D Primary or Microsoft Word. | -Designing a suitable package for the given product and audience.<br><br>-Make their design using CAD.<br><br>-Print and make their design 3D to assess its suitability,<br><br>-Evaluate the success of their design for its purpose and audience. |

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| | -Practise drawing and manipulating shapes such as rectangles, squares, ellipses, trapezoids and triangles.<br><br>-Making nets out of card, joining flat faces with masking tape to create 3-D shapes.<br><br>-Assemble nets in numerous ways using scoring, cutting and assembling techniques.<br><br>-Develop a design brief.<br><br>-Know the uses and purposes of their shell structure e.g. What does the product need to do? Who is it aimed at? How will the purpose and user affect your design decisions?<br><br>-The children to develop a design using computer-aided design (CAD) software to create nets, addressing the needs of the user and the purpose.<br><br>-Children evaluate their designs: What will you need to include in your design? How can you improve it? What materials will you use? How will you make sure your product works well and has the right appearance?<br><br>-The children identify the main stages of making and the appropriate tools and skills they learnt through focused tasks. Encourage the children to work with accuracy, using their computer-aided design (CAD) skills as appropriate.<br><br>-Evaluate throughout and the final products against the intended purpose and with the intended user, where safe and practical, drawing on the design criteria previously agreed. | |
| | **Learning Journey Question for Assessment** | The children can design a package on the computer and, when printed, it can be used to make a successful package for the audience and purpose. |

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| | **Unit 3**<br>**Program Control**<br><br>The children design and make lighthouses which light up, linked to their electricity work in science. They evaluate whether their design was successful in getting the lighthouse to light up. |
| | **Why this?**<br><br>This allows them to combine the joinery skills they have learnt in previous topics, such as CAD in Y4, pneumatics, and leavers and linkages in Y3 with programming electrical circuits. The children have learnt the necessary electrical circuits knowledge in science to help them to do this.<br><br>**Why now?**<br><br>The children are now more secure in their design skills and this provides them with an additional challenge. It also allows them to apply the knowledge they have learnt in science within a different context so that they can revisit and embed their knowledge and skills. |

| **Substantive Knowledge** | **DT Skills** |
|---|---|
| -Key vocabulary: series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, light emitting diode (LED), bulb, bulb holder, USB cable, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device, process, user, purpose, function, prototype, design criteria, innovative, appealing, design brief<br><br>-How to make manually controlled, simple series circuits with batteries and different types of switches, bulbs, motors and buzzers.<br><br>–Identify which of the components in the circuit are input devices e.g. switches, and which are output devices e.g. bulbs, motors and buzzers.<br><br>-How to find a fault in a simple circuit and correct it, giving pupils opportunities to practise.<br><br>-Practise the use of a simple computer control program using an interface box, microcontroller or standalone control box to | -Design a lighthouse for an intended audience, which lights up by using an electrical circuit with inputs and outputs.<br><br>-Make the lighthouse which is appropriate to fit an electrical circuit safely.<br><br>-Make a successful electrical circuit with inputs and outputs.<br><br>-Evaluate the success of the design and whether it successful appealed to the target audience. |

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| | control output devices, e.g. bulbs and buzzers, using a repeating sequence of instructions.<br><br>-Children 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, when you push them from side to side.<br><br>-Teach children how to avoid making short circuits.<br><br>-Design a lighthouse which will successfully light up for a target audience.<br><br>-The purpose of the battery-powered, programmable products that they will be designing and making and how they will work more effectively for the intended user than those that are manually controlled. Consider who they will be for and how they address a problem or need.<br><br>-Use design criteria that can be used to guide the development and evaluation of the children's products, including safety features.<br><br>-How to use annotated sketches, cross-sectional and exploded diagrams, as appropriate, ask the children to develop, model and communicate their ideas.<br><br>-The children to consider the main stages in making and testing before assembling high quality products, drawing on the knowledge, understanding and skills learnt.<br><br>-Evaluate throughout and the final products against the intended purpose and, where safe and practical, with the intended user, drawing on the design criteria previously agreed. | |

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| | **Learning Journey Question for Assessment** | The children design a lighthouse which lights up with an input and an output. It appeals to the target audience. |

| **Year** | **Unit 1** | |
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| **Year 5** | **<u>Mechanical Systems: Cams, Pulleys and Gears</u>**<br><br>The children design and make a moving toy, which could be sold at the Christmas fayre. | |
| | **Why this?**<br><br>This prepares them for Year 6 when they will have to design and make a product, which will sell at the Christmas fayre. In this instance, it is just to give them some inspiration. It also builds on their previous learning about mechanical systems in Year 3 and electrical system in Year 4.<br><br>**Why now?**<br><br>In Year 3, they learnt about different mechanical systems and in Year 4, they learnt about electrical systems. This allows them to build upon this knowledge and the skills they learnt. Additionally, it prepares them for designing products for a specific purpose, which will be particularly important in Year 6. | |
| | **Substantive Knowledge** | **DT Skills** |
| | -Key vocabulary: cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion<br><br>annotated sketches, exploded diagrams, mechanical system, input movement, process, output movement, design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief, pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram<br><br>annotated drawings, exploded diagrams<br><br>-How to build a cam. | -Children design from the brief provided.<br><br>-Children design by using annotated diagrams. This is done with guidance.<br><br>-Children make their designs independently from a variety of resources.<br><br>-Children evaluate the quality of their design.<br><br>-Children can discuss what would need to change in their design if they were to make it again. |

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| | -How to accurately place a cam.<br><br>-How to measure accurately and check before cutting any holes or gluing. It is important to line up the cam and follower otherwise the mechanism may not work smoothly. How high will the cam lift the follower?<br><br>-Develop measuring, marking, cutting, shaping and joining ability using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to make cam mechanisms and construct wooden frames or card housings, as appropriate.<br><br>-Demonstrate the accurate and safe use of tools and equipment.<br><br>-Using a construction kit, investigate combinations of two different sized pulleys to learn about direction and speed of rotation e.g. How many times does the smaller pulley turn each time the larger pulley turns once? Do the pulleys move in the same direction? How can you reverse the direction of rotation?<br><br>-Build a working circuit that incorporates a battery, a motor and a handmade switch, such as a reversing switch.<br><br>-Demonstrate the accurate use of tools and equipment<br><br>-Children know about the dangers of mains electricity.<br><br>-Develop and communicate their ideas through detailed plans.<br><br>-Make and effective product by measuring accurately and assessing their work as they go.<br><br>-Evaluate the quality of their product and workmanship. | |
| | **Learning Journey Question for Assessment** | Children can make a toy using either cams or pulleys, which would be appropriate to be sold at the Christmas fayre. |
| | **Unit 2** | |

**Frame Structures**

The children design and make successful and robust shelters. They evaluate their success by using success criteria.

**Why this?**

This allows the children to see how important it is to accurately measure and consider their materials when they are designing a product so that it can last. This allows them to explore design in a similar way to real designers, who consider how long an item will last and test products thoroughly before releasing them for sale.

**Why now?**

The children have learnt how to measure, cut and join materials to make products, but these will now have to withstand testing to see that they are accurate, secure and suitable. This means prior learning will need to be revisited, but at a much higher level.

| **Substantive Knowledge** | **DT Skills** |
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| -Key vocabulary: frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional.<br><br>-Build 2-D frameworks.<br><br>-Compare the strength of square frameworks with triangular frameworks.<br><br>-Know how to reinforce square frameworks using diagonals to help develop an understanding of using triangulation to add strength to a structure.<br><br>-Know how paper tubes can be made from rolling sheets of newspaper diagonally around pieces of e.g. dowel. How could each of the frameworks be reinforced and strengthened?<br><br>-Accurate use of tools and equipment.<br><br>-Develop techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. | -Design their frame structure by creating an annotated design and modelling techniques to try to envisage what their model will look like.<br><br>-To make their shelter, with accuracy, using a variety of materials and techniques.<br><br>-To use evaluation throughout their process, not just at the end, so that they are more successful in their final product.<br><br>-To evaluate their product by testing it thoroughly against set criteria. |

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| -Children to develop a simple design specification to guide their thinking, considering the tests which will be taken at the end.<br><br>-How to create annotated sketches with notes to help develop and communicate their ideas.<br><br>-How to model their ideas first using materials such as paper, card and paper straws e.g. How will you make it stable? How will it stand up? How could you make it stronger? Where are the weak points? How could you reinforce them? What tools and materials will you need? How can you improve the design?<br><br>-How to make their products with accuracy. They should regularly evaluate their work and their completed product, drawing on their design specification, and thinking about the intended purpose and user. | |
| **Learning Journey Question for Assessment** | The children can create a suitable frame structure which can withstand testing, such as being water proof, able to withstand impact from other objects etc. |

**Unit 3**

**Food and Nutrition - Culture and Seasonality**

The children use their knowledge of the Ancient Greeks to design and create an appropriate mezze board, which would have appealed to the Ancient Greeks.

**Why this?**

Children explore food design within the context of different cultures so that they understand how food design can vary.

**Why now?**

Previously, children have designed food which is relatively familiar to them. Now, they need to consider designing food which is authentic for a less familiar culture.

| **Substantive Knowledge** | **DT Skills** |
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| -Key vocabulary: ingredients, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, | -Designing a menu using authentic ingredients and considering texture, taste, smell etc. |

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| | combine, design specification, innovative, research, evaluate, design brief.<br><br>-Children know about typical Greek ingredients and why they are popular in Greece. They can compare this to British foods.<br><br>Demonstrate how to measure out, cut, shape and combine e.g. knead, beat, rub and mix ingredients.<br><br>-How to use appropriate utensils and equipment that the children may use safely and hygienically.<br><br>-How to consider 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.<br><br>-Designing an appropriate mezze menu, considering texture, taste, appearance and smell.<br><br>-How to make and combine their ingredients.<br><br>-How to evaluate their creation. | -Making their dish/es independently, hygienically and safely.<br><br>-To evaluate their dish through market research. |
| | **Learning Journey Question for Assessment** | The children design a mezze board using authentic ingredients. They can evaluate the effectiveness of their dish/es for taste, smell, texture through market research. |

<table>
<tr><th>Year</th><th colspan="2">Unit 1</th></tr>
<tr><td rowspan="4">Year 6</td><td colspan="2"><u>Food and Nutrition - Culture and Seasonality</u><br><br>The children design and make a dish of their choice taking account of seasonal ingredients for Christmas.</td></tr>
<tr><td colspan="2">Why this?<br><br>The children consider that some foods/recipes are associated with specific seasons/cultural events and use this to design an appropriate dish of their choices for their own chosen audience.<br><br>Why Now?<br><br>The children have learnt about appealing to both adult and child audience as well as considering specific cultures within Year 5. They now have freedom to choose their product and ingredients to sell at the Christmas fayre. They will need to use their product design and marketing skills successfully, revisiting prior learning, to ensure that their product sells.</td></tr>
<tr><td>Substantive Knowledge</td><td>DT Skills</td></tr>
<tr><td>-Key vocabulary: ingredients, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, design specification, innovative, research, evaluate, design brief.<br><br>-Use of market research to design their products. What do the audience want? Are their dietary/cultural needs to be aware of?<br><br>-Annotated design for their product, which considers market research.<br><br>-Use a suitable recipe to make their product safely and hygienically.<br><br>-Use taste testing hygienically throughout the process to ensure they are happy with their product.<br><br>-How to market their product.<br><br>-Evaluate the success of their product.</td><td>-Designing their product by using a variety of techniques previously taught, e.g. market research, annotated design etc.<br><br>-Make their product, without adult input, hygienically and safely.<br><br>-Evaluate their product’s success, both during and after the process, and adapt as needed.<br><br>-Use evidence to evaluate the success of the product.</td></tr>
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| **Learning Journey Question for Assessment** | The children can design a product, which is suitable for sale at the Christmas fayre. It should appeal to the audience the children choose and evaluation of the product should be made from evidence of sales and customer feedback. |

**Unit 2**

**Computer-Aided Design: Textiles**

The children use the computer to aid them in designing and making costume accessories for the Year 6 production.

**Why this?**

The children have not yet covered textiles in KS2. This gives them new knowledge and skills, whilst building upon familiar themes such as computer-aided design and product suitability.

**Why now?**

The children can build upon prior computer-aided design skills from Year 4 whilst refining their ability to make products which are useable for a specific purpose, which they have started doing this year.

| **Substantive Knowledge** | **DT Skills** |
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| - Key vocabulary: computer aided design (CAD), computer aided manufacture (CAM) font, lettering, text, graphics, menu, scale, modify, repeat, copy, flip, design brief, design criteria, design decisions, innovative, prototype, seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper, annotate, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype.<br><br>-Develop computer-aided design (CAD) ability by using pattern making software to generate, modify, scale, save and print pattern pieces. Recognise that designs can be easily modified and repeated on the computer without the need for a physical product.<br><br>-Develop knowledge of 2-D paper pattern making using CAD and create a 3-D paper or Dipryl mock-up of a chosen product. | -Communicating ideas through detailed, annotated drawings from different perspectives.<br><br>-Producing step-by-step plans, lists of tools equipment, fabrics and components needed.<br><br>-Developing their design using CAD software to produce pattern pieces and art programmes to produce decoration and design prints that can be applied to textiles.<br><br>-Making high quality products; applying knowledge.<br><br>-Evaluating both as the children proceed with their work and the final product in use, comparing the final product to the original design specification. |

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| | -Teach how to pin a pattern on to fabric ensuring limited wastage, how to leave a seam allowance and use different cutting techniques.<br><br>-Know how to thread needles and join textiles using a range of stitches.<br><br>-Set an authentic and meaningful design brief. Children generate ideas by carrying out research using surveys, interviews, questionnaires and the internet. Develop a design specification for their product.<br><br>-Communicate ideas through detailed, annotated drawings from different perspectives. Drawings should indicate the design decisions made, methods of strengthening, the type of fabrics to be used and the types of stitching that will be incorporated.<br><br>-Produce step-by-step plans, lists of tools equipment, fabrics and components needed. Allocate tasks within a team if appropriate.<br><br>-Develop their design using CAD software to produce pattern pieces and art programmes to produce decoration and design prints that can be applied to textiles.<br><br>-Make high quality products applying knowledge.<br><br>-Evaluate both as the children proceed with their work and the final product in use, comparing the final product to the original design specification.<br><br>-Critically evaluate the quality of the design, the manufacture, functionality, innovation shown and fitness for intended user and purpose, considering others' opinions.<br><br>-Communicate the evaluation in various forms e.g. writing for a particular purpose, giving a well-structured oral evaluation, speaking clearly and fluently. | -Critically evaluating the quality of the design, the manufacture, functionality, innovation shown and fitness for intended user and purpose, considering others' opinions.<br><br>-Communicating the evaluation in various forms e.g. writing for a particular purpose, giving a well-structured oral evaluation, speaking clearly and fluently. |
| | **Learning Journey Question for Assessment** | The children design an accessory using the computer to make a pattern and stitch this accurately. This is fit for purpose and can be used within the production. |