

## DT Progression Document Foundation Stage

| Foundation Stage   |   |
|--|---|
| Food:  | Activities  |
| <ul style="list-style-type: none"> <li>• Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</li> <li>• Experience of cutting soft fruit and vegetables using appropriate utensils.</li> <li>• Explore how to keep ourselves safe and hygienic</li> <li>• Explore a range of cooking utensils and experiment using these for different purposes</li> <li>• Explore a range of different foods and begin to sort them into food groups</li> <li>• With support, create food products to enjoy</li> <li>• Use a knife and fork competently</li> </ul> | <p>Making bread rolls- harvest<br/>Using apples from school trees to make a crumble<br/>Follow a recipe to make mince Pies.<br/>Fruit tasting- peeling, chopping and preparing<br/>Making vegetable soup<br/>Design and make a healthy snack.<br/>Follow a recipe to make Easter Nests.</p> |
| <p><b>Structures</b></p> <ul style="list-style-type: none"> <li>• Experience of using construction kits to build walls, towers and frameworks.</li> <li>• Experience of using basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.</li> <li>• Experience of different methods of joining card and paper.</li> </ul>   | <p>Introduction to creative area and tools<br/>Design and make a tissue paper flower Mother's day card.<br/>Explore and begin to understand various joining techniques, such as gluing, tape, sticking,<br/>Make a vehicle for a hero (ambulance, police<br/>Make Easter Baskets</p>        |
| <p><b>Textiles</b></p> <ul style="list-style-type: none"> <li>• Explored and used different fabrics.</li> <li>• Cut and join fabrics with simple techniques.</li> <li>• Thought about the user and purpose of products.</li> </ul>   | <p>Seaside Collages using fabric</p>  |
| <p><b>Mechanisms</b></p> <ul style="list-style-type: none"> <li>• Early experiences of working with paper and card to make simple flaps and hinges.</li> <li>• Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.</li> </ul>   | <p>Design and Make a Pea Trap (flaps, simple hinges and flanges)</p>  |
| <p><b>Electrical Systems</b></p> <ul style="list-style-type: none"> <li>• Be able to switch devices on and off.</li> <li>• Begin to understand how to instruct using Bee Bots</li> </ul>   | <p>Beebots</p>  |

**Continuous provision/enhanced provision activities linked to DT**

**Media and Material** Accessible within creative area

- Pens, pencils, chinks, charcoal, pastels, markers, rubbers, crayons
- Paints, paint trays, rollers, mixing palettes,
- Brushes, printing materials and tools
- Malleable materials (clay, play dough, mud)
- Resistant materials (wood, plastic, metals, glass, fabrics, cards, papers), liquids and aggregate (soil, gravel, pebbles, sand)
- Decorating materials (sequins, glitter, cotton wool, feathers, pom poms), fabrics (cloth, wools, hessian, netting, ribbons, cord, cotton thread, string, leather, raffia)
- Scissors, hole punches,
- Measuring (tapes, rules, jugs)
- Junk modelling

**Loose Parts**

- Natural materials (fir cones, feathers, shells, twigs, straw, leaves)
- Mirrors
- Loose parts (buttons, beads, sequins, shapes.)

**Water and Sand Play**  
Measuring jugs, measuring cylinders

**Construction Area (Indoor and Outdoor)-**

- Glues, tapes, elastic bands, fasteners, string, blocks, tyres, crates, bricks, boxes, drain pipes, guttering, large cardboard boxes, parachutes, large pieces of fabric, nuts and bolts, sheets, poles, canes, string, soil, gravel, sand, buckets, water, wheelbarrows, variety of building materials, measuring equipment, ipads.
- Introduce children to design plans and support them to build on their own experiences

**Construction Kits**  
Polydron, Train track, Tapa shape, Mobilo, Brio Builder Activity Set

**Technology**

- Children provided with a range of ICT for art and design including, Laptops, tablets, audio equipment- talking tins, software programmes, beebots
- Encourage children to use software (programmes) and hardware (cameras, youtube, movie makers, audio recorders) to retell and create stories, explore building and design through shape, develop designs and plans, make music or sound effects for role-play, dance and stories and use the internet to answer questions and explore ideas.

**Mud Kitchen**

## DT Progression Document KS1

| Year 1 Structures: freestanding structures 10 lessons |   |  |  |                                   |                                 |
|---|---|--|--|-----------------------------------|---------------------------------|
| Prior Knowledge                                       | <ul style="list-style-type: none"> <li>• Experience of using construction kits to build walls, towers and frameworks.</li> <li>• Experience of using basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.</li> <li>• Experience of different methods of joining card and paper.</li> </ul>               |  |  |                                   |                                 |
| Lesson  | Pupils will learn   | Key Knowledge  | Vocabulary   | Equipment                         | Guidance warnings               |
| 1. What is a structure?                               | <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> <li>• use simple design criteria to help develop their ideas generate ideas by drawing on their own experiences</li> </ul> | <ul style="list-style-type: none"> <li>• Experience of using construction kits to build walls, towers and frameworks.</li> <li>• Experience of using basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.</li> <li>• Experience of different methods of joining card and paper</li> </ul> | Cut, fold, join, fix, structure, wall, tower, weak, thinner, thicker, corner, point, straight, curved, metal, wood, plastic, circle, triangle, square, rectangle, cube, cylinder, design, make, evaluate, purpose, ideas, stable, strong | Paper, scissors, tape, glue stick | Equipment requiring safe usage. |
| 2. Understanding functions of freestanding structures | <ul style="list-style-type: none"> <li>• generate ideas by drawing on their own experiences</li> <li>• use knowledge of existing products to help come up with ideas</li> </ul>   |  |  |                                   |                                 |
| 3. Designing a structure                              | <ul style="list-style-type: none"> <li>• plan by suggesting what to do next</li> <li>• select from a range of tools and equipment, explaining their choices</li> </ul>  |  |  |                                   |                                 |
| 4. Cutting and joining                                | <ul style="list-style-type: none"> <li>• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components measure, mark out, cut and shape materials and components assemble, join and combine materials and components</li> </ul>                                    |  |  |                                   |                                 |
| 5. Designing a bridge                                 | <ul style="list-style-type: none"> <li>• talk about their design ideas and what they are making</li> <li>• suggest how their products could be improved</li> </ul>  |  |  |                                   |                                 |
| 6. Baby Bear's chair                                  | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> </ul>  |  |  |                                   |                                 |

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|------------------------------|---|--|--|--|--|
| 7. Investigating and testing | <ul style="list-style-type: none"> <li>• about the simple working characteristics of materials and components</li> <li>• assemble, join and combine materials and components</li> </ul> |  |  |  |  |
| 8. Baby Bear's chair         | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> </ul>            |  |  |  |  |
| 9. Strong, stiff and stable  | <ul style="list-style-type: none"> <li>• how freestanding structures can be made stronger, stiffer and more stable</li> <li>• what they like and dislike about products</li> </ul>      |  |  |  |  |
| 10. Technical terms          | <ul style="list-style-type: none"> <li>• Pupils will learn the correct technical vocabulary for the projects they are undertaking</li> </ul>  |  |  |  |  |

| Year 1 Cooking and nutrition: preparing fruit and vegetables 10 Lessons |   |   |  |  |   |
|---|---|---|--|--|---|
| Prior Knowledge   | <ul style="list-style-type: none"> <li>• Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</li> <li>• Experience of cutting soft fruit and vegetables using appropriate utensils.</li> </ul>   |   |  |  |   |
| Lesson  | Pupils will learn   | Key Knowledge   | Vocabulary   | Equipment  | Guidance warnings   |
| 1. Introduction: exploring delicious fruits and vegetables              | <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> <li>• what they like and dislike about products make simple judgements about their products and ideas against design criteria</li> </ul>   | <p><b>Substantive knowledge</b><br/>Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</p> <p><b>Disciplinary knowledge</b><br/>Experience of cutting soft fruit and vegetables using appropriate utensils.</p> | <p>Vocabulary:<br/>Fruit and vegetable names, names of equipment and utensils, sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard, flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria</p> | <p>Chopping boards, peeler, grater, washing up facilities, knives, range of fruit and veg, spoons, bowls</p> | <p>Equipment requiring safe usage</p> <p>Follow school policy on food hygiene</p> |
| 2. Developing ideas for a fruit salad                                   | <ul style="list-style-type: none"> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for use simple design criteria to help develop their ideas</li> </ul>   |   |  |  |   |
| 3. Making a fruit salad   | <ul style="list-style-type: none"> <li>• select from a range of tools and equipment,</li> <li>• explaining their choices follow</li> <li>• procedures for safety and hygiene</li> <li>• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> </ul> |   |  |  |   |
| 4. Designing and making a savoury salad                                 | <ul style="list-style-type: none"> <li>• say whether their products are for themselves or other users</li> <li>• use knowledge of existing products to help come up with ideas</li> <li>• develop and communicate ideas by talking and drawing</li> </ul>   |   |  |  |   |
| 5. Planning how to make a savoury salad                                 | <ul style="list-style-type: none"> <li>• how products work</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• state what products they are designing and making</li> </ul>   |   |  |  |   |

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| 6. Making a savoury salad  | <ul style="list-style-type: none"> <li>• that food ingredients should be combined according to their sensory characteristics</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>   |  |  |  |
| 7. Where do our fruit & vegetables come from?                        | <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that food has to be farmed, grown elsewhere (e.g. home) or caught</li> </ul>   |  |  |  |
| 8. Exploring the Eatwell Guide: investigating how to make a smoothie | <ul style="list-style-type: none"> <li>• how to name and sort foods into the five groups in The Eatwell Guide</li> <li>• that everyone should eat at least five portions of fruit and vegetables every day</li> <li>• how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• how to use techniques such as cutting, peeling and grating</li> <li>• select from a range of tools and equipment, explaining their choices;</li> <li>• follow procedures for safety and hygiene</li> </ul> |  |  |  |
| 9. Exploring ideas for a fruit or vegetable smoothie                 | <ul style="list-style-type: none"> <li>• use knowledge of existing products to help come up with ideas</li> <li>• develop and communicate ideas by talking and drawing</li> </ul>   |  |  |  |
| 10. Making a fruit or vegetable smoothie                             | <ul style="list-style-type: none"> <li>• what they like and dislike about products</li> <li>• how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• how to use techniques such as cutting, peeling and grating</li> <li>• follow procedures for safety and hygiene</li> </ul>  |  |  |  |

| Year 2 Mechanisms: sliders and levers 10 lessons                 |  |  |  |  |                   |
|--|--|--|--|--|-------------------|
| Prior Knowledge  | <ul style="list-style-type: none"> <li>• Early experiences of working with paper and card to make simple flaps and hinges.</li> <li>• Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.</li> </ul>  |  |  |  |                   |
| Lesson   | Pupils will learn  | Key Knowledge  | Vocabulary   | Equipment  | Guidance warnings |
| 1. To explore a range of sliders and levers                      | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• about the movement of simple mechanisms such as levers, sliders, wheels and axles. Equipment</li> </ul>   | <p><b>Substantive knowledge</b><br/>Early experiences of working with paper and card to make simple flaps and hinges.</p> <p><b>Disciplinary knowledge</b><br/>Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape</p> | Slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards, design, make, evaluate, user, purpose, ideas, design criteria, product, function | Card, paper, masking tape, paper fasteners, glue stick, scissors |                   |
| 2. To explore and evaluate products with moving parts            | <ul style="list-style-type: none"> <li>• use knowledge of existing products to help come up with ideas</li> <li>• develop and communicate ideas by talking and drawing</li> <li>• what they like and dislike about products</li> </ul>   |  |  |  |                   |
| 3. To investigate the properties of everyday materials           | <ul style="list-style-type: none"> <li>• generate ideas by drawing on their own experiences</li> <li>• select from a range of materials and components according to their characteristics</li> </ul>   |  |  |  |                   |
| 4. To explore a range of materials to help make design decisions | <ul style="list-style-type: none"> <li>• plan by suggesting what to do next</li> <li>• select from a range of tools and equipment, explaining their choices</li> <li>• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> </ul> |  |  |  |                   |
| 5. To explore a range of users and purposes                      | <ul style="list-style-type: none"> <li>• talk about their design ideas and what they are making</li> <li>• make simple judgements about their products and ideas against design criteria</li> <li>• suggest how their products could be improved</li> </ul>  |  |  |  |                   |

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| <p>6. To investigate and evaluate cards that include a variety of mechanisms and moving parts</p> | <ul style="list-style-type: none"> <li>• what products are</li> <li>• what products are for</li> <li>• who products are for</li> <li>• where products might be used</li> <li>• how products work,</li> <li>• how products are used</li> <li>• what materials products are made from</li> </ul>         |  |  |  |  |
| <p>7. To ideas generate design for a congratulations card</p>                                     | <ul style="list-style-type: none"> <li>• generate ideas by drawing on their own experiences</li> <li>• state what products they are designing and making</li> <li>• describe what their products are for</li> <li>• say how they will make their products suitable for their intended users</li> </ul> |  |  |  |  |
| <p>8. To use skills from art and design to decorate your congratulations card</p>                 | <ul style="list-style-type: none"> <li>• use finishing techniques, including those from art and design</li> <li>• select from a range of materials and components according to their characteristics</li> </ul>  |  |  |  |  |
| <p>9. To apply a chosen mechanism to a celebration card</p>                                       | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> </ul>   |  |  |  |  |
| <p>10. To evaluate your congratulations card Pupils</p>   | <ul style="list-style-type: none"> <li>• the correct technical vocabulary for the projects they are undertaking</li> <li>• make simple judgements about their products and ideas against design criteria</li> <li>• suggest how their products could be improved</li> </ul>                            |  |  |  |  |



| Year 2 Textiles: templates and joining techniques  |   |  |  |  |                                       |
|--|---|--|--|--|---------------------------------------|
| Prior Knowledge                                    | <ul style="list-style-type: none"> <li>• Explored and used different fabrics.</li> <li>• Cut and join fabrics with simple techniques.</li> <li>• Thought about the user and purpose of products.</li> </ul>   |  |  |  |                                       |
| Lesson   | Pupils will learn   | Key Knowledge  | Vocabulary   | Equipment  | Guidance warnings                     |
| 1. To explore a range of existing products         | <ul style="list-style-type: none"> <li>• what products are</li> <li>• what products are for</li> <li>• who products are for</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• what materials products are made from</li> <li>• what they like and dislike about products</li> </ul>   | <p>Substantive knowledge<br/>Explored and used different fabrics.</p> <p>Disciplinary knowledge<br/>Thought about the user and purpose of products</p> <p>Essential additional subject-specific information<br/>Cut and join fabrics with simple techniques.</p> | <p>Scissors, shears, felt, cotton, template, pattern pieces, mark out, join, decorate, finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function, identical, front, back</p> | <p>Fabric, thread, pins, needles, stapler, glue stick, scissors items for finishing e.g. buttons, wo</p> | <p>Equipment requiring safe usage</p> |
| 2. To work confidently within a chosen context     | <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> <li>• use knowledge of existing products to help come up with ideas</li> <li>• generate ideas by drawing on their own experiences</li> </ul> |  |  |  |                                       |
| 3. To experiment with different joining techniques | <ul style="list-style-type: none"> <li>• say how their products will work</li> <li>• say how they will make their products suitable for their intended users</li> <li>• about the simple working characteristics of materials and components †</li> <li>• that a 3-D textiles product can be assembled from two identical fabric shapes</li> </ul>              |  |  |  |                                       |
| 4. To use design criteria to develop ideas         | <ul style="list-style-type: none"> <li>• Pupils will learn say whether their products are for themselves or other users use simple design criteria to help develop their ideas develop and communicate ideas by talking and drawing Lesson</li> </ul>   |  |  |  |                                       |
| 5. To create a final design idea                   | <ul style="list-style-type: none"> <li>• talk about their design ideas and what they are making</li> <li>• state what products they are designing and making</li> </ul>   |  |  |  |                                       |

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|---|---|--|--|--|--|
|   | <ul style="list-style-type: none"> <li>• model ideas by exploring materials, components and construction kits and by making templates and mock-ups</li> <li>• use information and communication technology, where appropriate, to develop and communicate their ideas L</li> </ul>                              |  |  |  |  |
| 6. To explore how to make accurate templates and pattern pieces   | <ul style="list-style-type: none"> <li>• select from a range of tools and equipment, explaining their choices</li> <li>• select from a range of materials and components according to their characteristics</li> <li>• that a 3-D textiles product can be assembled from two identical fabric shapes</li> </ul> |  |  |  |  |
| 7. To explore finishing techniques                                | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• use finishing techniques, including those from art and design L</li> </ul>   |  |  |  |  |
| 8. To make a final fabric product                                 | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• use finishing techniques, including those from art and design</li> </ul>   |  |  |  |  |
| 9. To evaluate your puppet making simple judgements               | <ul style="list-style-type: none"> <li>• what they like and dislike about products</li> <li>• suggest how their products could be improved</li> <li>• make simple judgements about their products and ideas against design criteria L</li> </ul>  |  |  |  |  |
| 10. To evaluate how suitable your puppet is for the intended user | <ul style="list-style-type: none"> <li>• the correct technical vocabulary for the projects they are undertaking</li> <li>• say how they will make their products suitable for their intended users</li> <li>• suggest how their products could be improved L</li> </ul>   |  |  |  |  |

## DT Progression Document KS2

| Year 3 Cooking and nutrition: healthy and varied diets 10 Lessons |   |   |  |   |  |
|---|---|---|--|---|--|
| Prior Knowledge   | <ul style="list-style-type: none"> <li>• Know some ways to prepare ingredients safely and hygienically.</li> <li>• Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'.</li> <li>• Have used some equipment and utensils and prepared and combined ingredients to make a product.</li> </ul>   |   |  |   |  |
| Lesson  | Pupils will learn   | Knowledge   | Vocabulary   | Equipment   | Guidance warnings  |
| 1. What's in a packed lunch?                                      | <ul style="list-style-type: none"> <li>• how well products meet user needs and wants</li> <li>• why ingredients have been chosen</li> <li>• that food ingredients can be fresh, pre-cooked and processed</li> </ul>   | Substantive knowledge<br>Know some ways to prepare ingredients safely and hygienically.<br>Disciplinary knowledge<br>Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'.<br>Essential additional subject-specific information<br>Have used some equipment and utensils and prepared and combined ingredients to | Texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested, healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory evaluations | Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons – various sizes, parchment paper, cling film | Equipment requiring safe usage<br><br>Follow school policy on food hygiene |
| 2. Using research to develop design criteria                      | <ul style="list-style-type: none"> <li>• Pupils will learn gather information about the needs and wants of particular individuals and groups</li> <li>• develop their own design criteria and use these to inform their idea</li> </ul>   |   |  |   |  |
| 3. Designing for a target market                                  | <ul style="list-style-type: none"> <li>• describe the purpose of their products</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> <li>• work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> </ul>   |   |  |   |  |
| 4. Developing design ideas  | <ul style="list-style-type: none"> <li>• select tools and equipment suitable for the task</li> <li>• select materials and components suitable for the task</li> <li>• make design decisions that take account of the availability of resources</li> <li>• order the main stages of making</li> <li>• indicate the design features of their products that will appeal to intended users</li> </ul> |   |  |   |  |
| 5. Using ingredients to create your ideas                         | <ul style="list-style-type: none"> <li>• assemble, join and combine materials and components with some accuracy</li> <li>• follow procedures for safety and hygiene</li> <li>• use a wider range of materials and components than Key Stage 1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul>                  |   |  |   |  |

|  |   |                 |  |  |  |
|--|---|-----------------|--|--|--|
| 6. Evaluating your product                   | <ul style="list-style-type: none"> <li>• Pupils will learn use their design criteria to evaluate their completed products</li> <li>• identify the strengths and areas for development in their ideas and products</li> <li>• consider the views of others, including intended users, to improve their work</li> </ul>   | make a product. |  |  |  |
| 7. Exploring food and where it comes from    | <ul style="list-style-type: none"> <li>• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li> <li>• that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the 'Eatwell Guide'</li> <li>• that to be active and healthy, food and drink are needed to provide energy for the body</li> </ul> |                 |  |  |  |
| 8. Using evaluation to develop ideas further | <ul style="list-style-type: none"> <li>• indicate the design features of their products that will appeal to intended users</li> <li>• select tools and equipment suitable for the task</li> <li>• select materials and components suitable for the task</li> <li>• make design decisions that take account of the availability of resources</li> <li>• order the main stages of making</li> </ul>   |                 |  |  |  |
| 9. Delicious dips                            | <ul style="list-style-type: none"> <li>• will learn assemble, join and combine materials and components with some accuracy</li> <li>• follow procedures for safety and hygiene</li> <li>• use a wider range of materials and components than Key Stage 1, including food ingredients how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>  |                 |  |  |  |
| 10. Marvellous oat bars                      | <ul style="list-style-type: none"> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> <li>• that food ingredients can be fresh, pre-cooked and processed</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>  |                 |  |  |  |

| Year 3 Unit 2 Mechanisms: levers and linkages 10 Lessons                 |  |  |  |  |                                |
|--|--|--|--|--|--------------------------------|
| Prior Knowledge  | <ul style="list-style-type: none"> <li>Explored and used mechanisms such as flaps, sliders and levers.(Year 2)</li> <li>Gained experience of basic cutting, joining and finishing techniques with paper and card.</li> </ul>   |  |  |  |                                |
| Lesson   | Pupils will learn  | Knowledge  | Vocabulary   | Equipment  | Guidance warnings              |
| 1. Understanding how a range of mechanisms create movement               | <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>how mechanical systems such as levers and linkages or pneumatic systems create movement</li> <li>whether products can be recycled or reused</li> </ul> | <p><b>Substantive knowledge</b><br/>Explored and used mechanisms such as flaps, sliders and levers.</p> <p><b>Disciplinary knowledge</b><br/>Gained experience of basic cutting, joining and finishing techniques with paper and card.</p> | Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief | Card, paper, masking tape, paper fasteners, glue stick, scissors | Equipment requiring safe usage |
| 2. Developing understanding of different mechanisms and how to make them | <ul style="list-style-type: none"> <li>the correct technical vocabulary for the projects they are undertaking</li> <li>how mechanical systems such as levers and linkages or pneumatic systems create movement</li> </ul>  |  |  |  |                                |
| 3. To design a product criteria, meeting the needs of the user           | <ul style="list-style-type: none"> <li>generate realistic ideas, focusing on the needs of the user</li> <li>share and clarify ideas through discussion</li> </ul>  |  |  |  |                                |
| 4. Using a range of techniques to create a prototype of developing ideas | <ul style="list-style-type: none"> <li>measure, mark out, cut and shape materials and components with some accuracy</li> <li>assemble, join and combine materials and components with some accuracy</li> </ul>   |  |  |  |                                |
| 5. Developing design ideas further, using understanding of mechanisms    | <ul style="list-style-type: none"> <li>indicate the design features of their products that will appeal to intended users</li> <li>explain how particular parts of their products work</li> <li>use annotated sketches to develop and communicate their ideas</li> </ul>  |  |  |  |                                |
| 6. Planning the creation of your final idea                              | <ul style="list-style-type: none"> <li>order the main stages of making</li> <li>use annotated sketches and exploded diagrams to develop and communicate their ideas</li> </ul>   |  |  |  |                                |

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|   | <ul style="list-style-type: none"> <li>• refer to their design criteria as they design and make</li> </ul>   |  |  |  |  |
| 7. Using a range of techniques to begin to make our final idea                            | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> <li>• assemble, join and combine materials and components with some accuracy</li> <li>• apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ul> |  |  |  |  |
| 8. Using a range of techniques to complete final idea                                     | <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> <li>• assemble, join and combine materials and components with some accuracy</li> <li>• apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ul> |  |  |  |  |
| 9. Using a range of techniques to complete final idea and testing against design criteria | <ul style="list-style-type: none"> <li>• use a wider range of materials and components than Key Stage 1, including mechanical components</li> <li>• use their design criteria to evaluate their completed products L</li> </ul>  |  |  |  |  |
| 10. Evaluation of final product and considering the views of others                       | <ul style="list-style-type: none"> <li>• learn the correct technical vocabulary for the projects they are undertaking</li> <li>• identify the strengths and areas for development in their ideas and products</li> <li>• consider the views of others, including intended users, to improve their work</li> </ul>            |  |  |  |  |

| Year 4 Unit 3 Keep it safe: shell, solid and combination structures 10 lessons |  |   |   |  |                                |
|--|--|---|---|--|--------------------------------|
| Prior Knowledge  | Experience of using different joining, cutting and finishing techniques with paper and card.<br>A basic understanding of 2-D and 3-D shapes in mathematics   |   |   |  |                                |
| Lesson   | Pupils will learn  | Knowledge   | Vocabulary  | Equipment  | Guidance warnings              |
| 1. To investigate structures   | <ul style="list-style-type: none"> <li>how well products have been designed</li> <li>why materials have been chosen</li> <li>what methods of construction have been used</li> <li>how well products work</li> <li>how well products meet user needs and wants</li> </ul>   | <p><b>Substantive knowledge</b><br/>Experience of using different joining, cutting and finishing techniques with paper and card.</p> <p><b>Disciplinary knowledge</b><br/>A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.</p> | Shell structure, frame structure, solid structure, combination structure, three-dimensional (3-D) shape, net, cube, cuboid, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, | Card, squared paper, sellotape, masking tape, pencil, corrugated card, ruler, scissors, fabric | Equipment requiring safe usage |
| 2. To construct nets to create 3D shapes                                       | <ul style="list-style-type: none"> <li>how to make strong, stiff shell structures</li> <li>measure, mark out, cut and shape materials and components with some accuracy</li> <li>assemble, join and combine materials and components with some accuracy</li> </ul>   |   |   |  |                                |
| 3. To evaluate existing structures   | <ul style="list-style-type: none"> <li>PEB 9 who designed and made the products</li> <li>where products were designed and made</li> <li>when products were designed and made</li> </ul>  |   |   |  |                                |
| 4. To develop a design brief and to sketch ideas for the product               | <ul style="list-style-type: none"> <li>Pupils will learn develop their own design criteria and use these to inform their idea</li> <li>generate realistic ideas, focusing on the needs of the user</li> <li>model their ideas using prototypes</li> <li>use annotated sketches to develop and communicate their ideas</li> </ul> |   |   |  |                                |
| 5. To explore contexts and purposes of structures                              | <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>describe the purpose of their products how to use learning from mathematics to help design and make products that work</li> </ul>        |   |   |  |                                |
| 6. To design, make and evaluate structures                                     | <ul style="list-style-type: none"> <li>refer to their design criteria as they design and make consider the views of others, including intended users, to improve their work</li> </ul>   |   |   |  |                                |
| 7. To experiment with making techniques  | <ul style="list-style-type: none"> <li>order the main stages of making select tools and equipment suitable for the task</li> <li>select materials and components suitable for the task</li> </ul>  |   |   |  |                                |

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|  | <ul style="list-style-type: none"> <li>the correct technical vocabulary for the projects they are undertaking</li> </ul>   |  |  |  |  |
| 8. To measure, mark out, cut and shape materials                       | <ul style="list-style-type: none"> <li>use annotated sketches and cross-sectional drawings to develop and communicate their ideas</li> <li>measure, mark out, cut and shape materials and components with some accuracy</li> <li>assemble, join and combine materials and components with some accuracy</li> </ul>     |  |  |  |  |
| 9. To assemble, join and combine materials creating a finished product | <ul style="list-style-type: none"> <li>measure, mark out, cut and shape materials and components with some accuracy</li> <li>assemble, join and combine materials and components with some accuracy</li> <li>apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ul> |  |  |  |  |
| 10. To evaluate the final product                                      | <ul style="list-style-type: none"> <li>PEA 5 - use their design criteria to evaluate their completed products</li> <li>PEA 8 - identify the strengths and areas for development in their ideas and products</li> </ul>   |  |  |  |  |

laminating,  
font,  
lettering,  
text,  
graphics,  
decision,  
evaluating,  
design brief  
design  
criteria,  
innovative,  
prototype



| Year 4 Unit 4 Electronics: simple circuits and switches 10 lesson                    |   |   |   |  |                                       |
|--|---|---|---|--|---------------------------------------|
| Prior Knowledge  | <ul style="list-style-type: none"> <li>Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers.</li> <li>Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</li> </ul>                                     |   |   |  |                                       |
| Lesson   | Pupils will learn   | Knowledge   | Vocabulary  | Equipment  | Guidance warnings                     |
| 1. To learn about electrical systems   | <ul style="list-style-type: none"> <li>that mechanical and electrical systems have an input, process and output how well products achieve their purposes</li> </ul>   | <p><b>Substantive knowledge</b><br/>Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</p> <p><b>Disciplinary knowledge</b><br/>Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers.</p> | <p>Series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, input device, output device, copper track, user, purpose, function, prototype, design criteria, innovative,</p> | <p>Aluminium foil, paper fasteners, paper clips, card, paper clips, buzzers, bulbs, bulb holders, batteries, battery holders, scissors, copper tape, Computer/iPad</p> | <p>Equipment requiring safe usage</p> |
| 2. To learn how electrical products meet the needs of users                          | <ul style="list-style-type: none"> <li>how well products meet user needs and wants gather information about the needs and wants of particular individuals and groups how simple electrical circuits and components can be used to create functional products</li> </ul>                                   |   |   |  |                                       |
| 3. To develop a design criteria  | <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>develop their own design criteria and use these to inform their idea</li> </ul>                                   |   |   |  |                                       |
| 4. To design an electrical circuit diagram   | <ul style="list-style-type: none"> <li>make design decisions that take account of the availability of resources</li> <li>use annotated sketches to develop and communicate their ideas</li> </ul>   |   |   |  |                                       |
| 5. To know how to construct simple series circuits                                   | <ul style="list-style-type: none"> <li>how to use learning from science to help design and make products that work</li> <li>measure, mark out, cut and shape materials and components with some accuracy</li> <li>identify the strengths and areas for development in their ideas and products</li> </ul> |   |   |  |                                       |
| 6. To generate ideas for electrical systems using different materials and components | <ul style="list-style-type: none"> <li>generate realistic ideas, focusing on the needs of the user</li> <li>order the main stages of making</li> <li>select materials and components suitable for the task</li> </ul>   |   |   |  |                                       |
| 7. To design, make and test  | <ul style="list-style-type: none"> <li>the correct technical vocabulary for the projects they are undertaking</li> <li>how well products meet user needs and wants</li> </ul>   |   |   |  |                                       |

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| components for an electrical system.  |  |  | appealing, design brief |  |  |
| 8. To use learning from science to help design and make working electrical products | <ul style="list-style-type: none"> <li>• how to use learning from science to help design and make products that work</li> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> </ul>                          |  |                         |  |  |
| 9. To select components to assemble electrical systems                              | <ul style="list-style-type: none"> <li>• how to use learning from science to help</li> <li>• design and make products that work</li> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> </ul>               |  |                         |  |  |
| 10. To evaluate how well products meet user needs and wants                         | <ul style="list-style-type: none"> <li>• explain how particular parts of their products work</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> <li>• how well products meet user needs and wants</li> </ul> |  |                         |  |  |

| Year 5 Unit 5 Cooking and nutrition: Celebrating culture and seasonality |   |  |   |  |                                |
|--|---|--|---|--|--------------------------------|
| Prior Knowledge  | Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients   |  |   |  |                                |
| Lesson   | Pupils will learn   | Knowledge  | Vocabulary  | Equipment  | Guidance warnings              |
| 1. Introduction - Celebrating culture and seasonality                    | <ul style="list-style-type: none"> <li>that seasons may affect the food available that food ingredients can be fresh, pre-cooked and processed</li> <li>carry out research, using surveys, interviews, questionnaires and web-based resources</li> <li>identify the needs, wants, preferences and values of particular individuals and group</li> </ul>           | Substantive knowledge<br>Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.<br>Disciplinary knowledge Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients | Ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, Weighing scales, measuring jugs, bowls, spoons – various sizes, baking trays | Weighing scales, measuring jugs, bowls, spoons – various sizes, baking trays | Equipment requiring safe usage |
| 2. Where does our food come from?  | <ul style="list-style-type: none"> <li>that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li> <li>how food is processed into ingredients that can be eaten or used in cooking</li> </ul>  |  |   |  |                                |
| 3. Understanding the needs of a healthy varied diet Pupils               | <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>that a recipe can be adapted by adding or substituting one or more ingredients</li> <li>the correct technical vocabulary for the projects they are undertaking</li> </ul> |  |   |  |                                |
| 4. Combining ingredients: making a soup                                  | <ul style="list-style-type: none"> <li>how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</li> <li>how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>                                  |  |   |  |                                |
| 5. Evaluating food products  | <ul style="list-style-type: none"> <li>that different food and drink contain different substances - nutrients, water and fibre - that are needed for health</li> </ul>  |  |   |  |                                |

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|   | <ul style="list-style-type: none"> <li>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>identify the strengths and areas for development in their ideas and products</li> <li>consider the views of others, including intended users, to improve their work</li> </ul>  |  |  |  |  |
| 6. Combining ingredients: making healthy pancakes           | <ul style="list-style-type: none"> <li>develop a simple design specification to guide their thinking generate innovative ideas, drawing on research</li> <li>make design decisions, taking account of constraints such as time, resources and cost</li> <li>that recipes can be adapted to change the appearance, taste, texture and aroma</li> </ul>  |  |  |  |  |
| 7. The food industry  | <ul style="list-style-type: none"> <li>produce appropriate lists of tools, equipment and materials that they need</li> <li>formulate step-by-step plans as a guide to making</li> <li>select tools and equipment suitable for the task</li> <li>how much products cost to make</li> <li>explain their choice of tools and equipment in relation to the skills and techniques they will be using</li> </ul>                   |  |  |  |  |
| 8. Combining ingredients: making bread                      | <ul style="list-style-type: none"> <li>accurately assemble, join and combine materials and components</li> <li>accurately apply a range of finishing techniques, including those from art and design use techniques that involve a number of steps</li> <li>follow procedures for safety and hygiene use a wider range of materials and components than Key Stage 1, including food ingredients and kitchen tools</li> </ul> |  |  |  |  |
| 9. Design your own dish to reflect a culture or celebration | <ul style="list-style-type: none"> <li>Pupils will learn how sustainable the materials in products are</li> <li>about chefs and manufacturers who have developed ground-breaking products</li> </ul>   |  |  |  |  |
| 10. Create your own dish to reflect                         | <ul style="list-style-type: none"> <li>why materials have been chosen</li> <li>how well products achieve their purposes</li> <li>how well products meet user needs and wants</li> </ul>  |  |  |  |  |

pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, design specification, innovative, research, evaluate, design brief

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| your chosen culture or celebration |  |  |  |  |  |
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**Year 5 Unit 8 Textiles: combining different fabric shapes 10 lessons**

| Prior Knowledge   |  |   |  |  |                                |
|---|--|---|--|--|--------------------------------|
| Lesson  | Pupils will learn  | Knowledge   | Vocabulary   | Equipment  | Guidance warnings              |
| 1. What are the properties of different fabrics?              | <ul style="list-style-type: none"> <li>that materials have both functional properties and aesthetic qualities</li> <li>the correct technical vocabulary for the projects they are undertaking</li> </ul>   | <b>Substantive knowledge</b><br>Experience of basic stitching, joining textiles and finishing techniques.<br><br><b>Disciplinary knowledge</b><br>Experience of making and using simple pattern pieces. | Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints | Equipment<br>Existing textile products for investigation and deconstruction, selection of fabrics, pins, needles, thread, measuring tape<br>Guidance warnings. | Equipment requiring safe usage |
| 2. What are modern and smart textile materials?               | <ul style="list-style-type: none"> <li>Pupils will learn what impact products have beyond their intended purpose,</li> <li>the negative impact of the textiles industry</li> </ul>   |   |  |  |                                |
| 3. How can textiles become more sustainable?                  | <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>carry out research, using interviews and questionnaires consider the views of others, including intended users, to improve their work</li> </ul> |   |  |  |                                |
| 4. What are the different types of stitches used in textiles? | <ul style="list-style-type: none"> <li>how well products have been made why materials have been chosen</li> <li>that a 3D textiles product can be made from a combination of fabric shapes</li> </ul>  |   |  |  |                                |
| 5. What makes an effective range of initial design ideas?     | <ul style="list-style-type: none"> <li>use annotated sketches to develop and communicate their ideas</li> <li>describe the purpose of their products</li> <li>indicate the design features of their products that will appeal to intended users</li> </ul>   |   |  |  |                                |
| 6. How do we develop our design ideas?                        | <ul style="list-style-type: none"> <li>use annotated sketches to develop and communicate their ideas</li> <li>that materials have both functional properties and aesthetic qualities</li> </ul>  |   |  |  |                                |

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|   | <ul style="list-style-type: none"> <li>the correct technical vocabulary for the projects they are undertaking</li> <li>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> </ul>   |  |  |  |  |
| 7. How to use the tools and equipment to mark our phone holder accurately   | <ul style="list-style-type: none"> <li>select tools and equipment suitable for the task</li> <li>select materials and components suitable for the task</li> <li>produce appropriate lists of tools, equipment and materials that they need</li> <li>formulate step-by-step plans as a guide to making</li> </ul> |  |  |  |  |
| 8. What stitch will be most suitable to join our pieces of fabric together? | <ul style="list-style-type: none"> <li>accurately apply a range of finishing techniques, including those from art and design</li> <li>use techniques that involve a number of steps</li> <li>use a wider range of materials and components than Key Stage 1, including, textiles, and components</li> </ul>      |  |  |  |  |
| 9. How can we correctly apply a finish to our phone holder?                 | <ul style="list-style-type: none"> <li>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>identify the strengths and areas for development in their ideas and products</li> </ul>   |  |  |  |  |
| 10. Why is it important to evaluate your finished product?                  | <ul style="list-style-type: none"> <li>evaluate their ideas and products against their original design specification</li> <li>what impact products have beyond their intended purpose</li> </ul>   |  |  |  |  |

| Year 6 Unit 6 Reactions 10 lessons  |   |  |  |   |                                |
|---|---|--|--|---|--------------------------------|
| Prior Knowledge   | Some experience of writing and modifying a program e.g. Scratch<br>Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.   |  |  |   |                                |
| Lesson  | Pupils will learn   | Knowledge  | Vocabulary   | Equipment   | Guidance warnings              |
| 1. Introduction lesson: understanding electrical systems                                      | <ul style="list-style-type: none"> <li>Pupils will learn that mechanical and electrical systems have an input, process and output</li> <li>the correct technical vocabulary for the projects they are undertaking</li> <li>accurately assemble, join and combine materials and components</li> <li>use techniques that involve a number of steps</li> </ul> Equipment.  | <b>Substantive knowledge</b><br>Some experience of writing and modifying a program e.g. Scratch<br><br><b>Disciplinary knowledge</b><br>Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. | Reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED) USB cable, wire, insulator, conductor, crocodile clip, control, microprocessor, program, system, input device, output device, function, innovative, design specification, design brief, user, purpose, exploded, isometric, prototype | Computer / iPad with internet access, construction materials i.e. card, scissors, tape, paper | Equipment requiring safe usage |
| 2. Exploring electrical and mechanical systems: the need for control in design and technology | <ul style="list-style-type: none"> <li>the correct technical vocabulary for the projects they are undertaking</li> <li>accurately assemble, join and combine materials and components</li> <li>use techniques that involve a number of steps</li> <li>use a wider range of materials and components than Key Stage 1, including electrical components</li> </ul>  |  |  |   |                                |
| 3. Exploring how to control simple circuits to create more functional products                | <ul style="list-style-type: none"> <li>Pupils will learn work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>how more complex electrical circuits and components can be used to create functional products</li> <li>how to program a computer to monitor changes in the environment and control their products</li> <li>how to use learning from science to help design and make products that work</li> </ul> |  |  |   |                                |
| 4. Responding to a design brief and exploring ideas   | <ul style="list-style-type: none"> <li>develop a simple design specification to guide their thinking use annotated sketches to develop and communicate their ideas</li> </ul>   |  |  |   |                                |

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|--|--|--|--|--|--|
| 5. Developing an idea  | <ul style="list-style-type: none"> <li>develop a simple design specification to guide their thinking</li> <li>use exploded diagrams to develop and communicate their ideas</li> </ul>  |  |  |  |  |
| 6. Exploring the use of new and emerging technology used in products | <ul style="list-style-type: none"> <li>how innovative products are</li> <li>how well products work</li> <li>new and emerging technology, including wearables</li> </ul>  |  |  |  |  |
| 7. Planning to make an end product                                   | <ul style="list-style-type: none"> <li>to formulate step-by-step plans as a guide to making</li> <li>select tools and equipment suitable for the task L</li> </ul>   |  |  |  |  |
| 8. Making a final prototype  | <ul style="list-style-type: none"> <li>the correct technical vocabulary for the projects they are undertaking</li> <li>accurately assemble, join and combine materials and components</li> </ul>   |  |  |  |  |
| 9. Making a final prototype: electrical system                       | <ul style="list-style-type: none"> <li>identify the strengths and areas for development in their ideas and products consider the views of others, including intended users, to improve their work</li> </ul>   |  |  |  |  |
| 10. Critically evaluate the end product                              | <ul style="list-style-type: none"> <li>explain how particular parts of their products work</li> <li>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>evaluate their ideas and products against their original design specification</li> </ul> |  |  |  |  |

### Year 6 Unit 7 3D computer aided design 10 lessons

|  |  |                               |                        |                               |                                |
|--|--|-------------------------------|------------------------|-------------------------------|--------------------------------|
| <b>Prior Knowledge</b>                           | Basic computer ability / experience  |                               |                        |                               |                                |
| <b>Lesson</b>                                    | <b>Pupils will learn</b>   | <b>Knowledge</b>              | <b>Vocabulary</b>      | <b>Equipment</b>              | <b>Guidance warnings</b>       |
| 1. How do we analyse existing products' designs? | <ul style="list-style-type: none"> <li>how innovative products are</li> <li>what impact products have beyond their intended purpose</li> </ul> | <b>Disciplinary knowledge</b> | Computer-aided design, | Computer / iPad with internet | Equipment requiring safe usage |



|   |   |                                      |   |                             |  |
|---|---|--------------------------------------|---|-----------------------------|--|
|   | <ul style="list-style-type: none"> <li>• what methods of construction have been used</li> <li>• how well products meet user needs and wants</li> </ul>  | Basic computer ability / experience. | (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype | access, mouse, ruler, paper |  |
| 2. Why do we need to research before designing?             | <ul style="list-style-type: none"> <li>• carry out research, using surveys and web-based resources</li> </ul>   |                                      |   |                             |  |
| 3. How can we identify what our users want?                 | <ul style="list-style-type: none"> <li>• identify the needs, wants, preferences and values of particular individuals and groups develop a simple design specification to guide their thinking</li> </ul>  |                                      |   |                             |  |
| 4. Who are architects and what do they do?                  | <ul style="list-style-type: none"> <li>• about designers and engineers who have developed ground-breaking products</li> </ul>   |                                      |   |                             |  |
| 5. What is a specification and why do we need to write one? | <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as the home, school, leisure, culture, industry and the wider environment</li> <li>• describe the purpose of their products</li> <li>• indicate the design features of their products that will appeal to intended users</li> <li>• explain how particular parts of their products work</li> </ul> |                                      |   |                             |  |
| 6. What makes an effective range of initial design ideas?   | <ul style="list-style-type: none"> <li>• generate innovative ideas, drawing on research</li> <li>• make design decisions, taking account of constraints such as time, resources and cost</li> <li>• model their ideas using prototypes</li> <li>• use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> </ul>                    |                                      |   |                             |  |
| 7. What are the benefits of using computer aided design?    | <ul style="list-style-type: none"> <li>• select materials and components suitable for the task</li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li> <li>• use computer-aided design to develop and communicate their ideas</li> </ul>  |                                      |   |                             |  |
| 9. How can you present and share your final designs?        | <ul style="list-style-type: none"> <li>• Pupils will learn share and clarify ideas through discussion</li> <li>• carry out research, using surveys and web-based resources</li> </ul>   |                                      |   |                             |  |

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| 10. Why is it important to evaluate your final designs? | <ul style="list-style-type: none"><li>• the correct technical vocabulary for the projects they are undertaking</li><li>• critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li><li>• consider the views of others, including intended users, to improve their work</li></ul> |  |  |  |  |
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