



## Design and Make Progression of Knowledge and Skills

|                                                       | EYFS                                                                                                                                                                                                                                                                                                                                                                                | Year 1                                                                                                                                                                                                                                             | Year 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Year 3 | Year 4 | Year 5 | Year 6 |
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| Key Knowledge                                         |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        |        |        |
| <b>Technological Knowledge from NC/ELG's for EYFS</b> | <b>Expressive Arts and Design</b><br><u><b>Creating with Materials ELG</b></u><br><br>Children at the expected level of development will: <ul style="list-style-type: none"> <li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function.</li> <li>• Share their creations, explaining the</li> </ul> | <ul style="list-style-type: none"> <li>• Build structures, exploring how they can be made stronger, stiffer and more stable.</li> <li>• Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</li> </ul> | <ul style="list-style-type: none"> <li>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</li> <li>• Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</li> <li>• Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</li> <li>• Apply their understanding of computing to program, monitor and control their product.</li> </ul> |        |        |        |        |

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|                            | process they have used.                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                    |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Technical Knowledge</b> | <p><b>EYFS DEVELOPMENT MATTERS</b></p> <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> <li>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li> <li>Create collaboratively, sharing ideas, resources and skills.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>Explore and use mechanisms for example, such as <b>wheels</b> and <b>axles</b> in their products.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>explore and use mechanisms such levers and sliders</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</li> <li>understand and use mechanical systems in their products such as cams and levers</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use electrical systems in their products such as, series circuits incorporating switches and bulbs</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use mechanical systems in their products such as gears, pulleys and linkages</li> <li>understand and use electrical systems in their products such as series circuits incorporatin</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use mechanical systems in their products for example, gears, pulleys, cams, levers and linkages</li> <li>understand and use electrical systems in their products for example, series circuits</li> </ul> |

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|  |  |  |  |  |  | g switches and motors | incorporatin<br>g switches,<br>bulbs,<br>buzzers and<br>motors<br><br>• apply their<br>understandin<br>g of<br>computing<br>to program,<br>monitor and<br>control their<br>product |
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## Key Skills

### Design – from the NC/ELG for EYFS

#### Expressive Arts and Design Creating with Materials ELG

Children at the expected level of development will:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture,

- Design purposeful, functional, appealing products for themselves and other users based on design criteria.
- Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

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|               | form, and function<br><br>• Share their creations, explaining the process they have used.                                                                                         |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |
| <b>Design</b> | As a designer, we will:<br><br>• Look at the different emergency vehicles. Look at the colours of each one. Practise using different colours to represent the different vehicles. | As a designer, we will:<br><br>• Use pictures and words to convey what they want to design/make<br>• Explore ideas by rearranging materials.<br>• Select pictures to help develop ideas and produce a mind map.<br>• Explore and use wheels and axles in their products to ensure the car moves | As a designer, we will:<br><br>• Propose more than one idea for their product.<br>• Use drawings to record ideas as they are developed.<br>• Add notes to drawings to help explanations.<br>• Use mock-ups e.g. recycled material trial models to try out their ideas<br>• Build structures, exploring how | As a designer, we will:<br><br>• Develop more than one design or adaptation of an initial design.<br>• Plan a sequence of actions to make a product. Think ahead about the order of their work and decide upon tools and materials.<br>• Propose realistic suggestions as to how they can achieve their design | As a designer, we will:<br><br>• Record the plan by drawing using annotated sketches.<br>• Use prototypes to develop and share ideas.<br>• Consider aesthetic qualities of materials chosen – which materials will be best to cut out designs and allow light to pass through? | As a designer, we will:<br><br>• Record ideas using annotated diagrams.<br>• Use models, kits and drawings to help formulate design ideas.<br>• Sketch and model alternative ideas.<br>• Decide which design idea to develop<br>• Apply their understanding of how to strengthen, stiffen and | As a designer, we will:<br><br>• Plan the sequence of work.<br>• Devise step by step plans which can be read/followed by someone else.<br>• Use exploded diagrams and cross-sectional diagrams to communicate ideas |

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|                                                            |                                                                                                                                                                                                                                                                       | freely down a ramp and in a straight line.                                                                                                                                                                                                                                                                                                                    | they can be made stronger, stiffer and more stable | ideas and how the different CAMs mechanisms change the movement of the toy.                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"><li>• Sketch and model alternative ideas.</li><li>• Decide which design idea to develop.</li><li>• Apply their knowledge of electrical circuits to design a working and functional circuit to create light.</li></ul> | reinforce more complex structures when choosing appropriate materials and designing their merry go round. <ul style="list-style-type: none"><li>• Apply their knowledge of electrical circuits to design a working and functional circuit to make a motor move.</li></ul> |  |
| <b>Make – from the national curriculum/ ELG's for EYFS</b> | <b>Expressive Arts and Design</b><br><b><u>Creating with Materials ELG</u></b> <ul style="list-style-type: none"><li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function.</li></ul> | <ul style="list-style-type: none"><li>• Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li><li>• Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li></ul> |                                                    | <ul style="list-style-type: none"><li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li><li>• Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li></ul> |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                           |  |

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| <b>Make</b> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Use cardboard, paper and other materials to make emergency vehicles.</li> <li>• Work fine motor skills, cutting, sticking and colours.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Select materials from a limited range.</li> <li>• Explain what they are making.</li> <li>• Name the tools they are using.</li> <li>• Begin to use a saw to cut materials such as wood to the correct size.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Discuss their work as it progresses.</li> <li>• Select and name the tools needed to work the materials.</li> <li>• Explain which materials they are using and why.</li> <li>• Become more confident when using a saw to cut materials such as wood.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Use researched information to develop ideas.</li> <li>• Select from a range of tools for cutting, shaping, joining and finishing.</li> <li>• Use tools with accuracy</li> <li>• Select from materials according to their functional properties.</li> <li>• Use appropriate finishing techniques to make their toy look desirable.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Use researched information to develop ideas and help inform decisions.</li> <li>• Prepare pattern pieces as templates for their design e.g. how their pattern will allow the light to shine through and will this fit the purpose and aesthetic desires.</li> <li>• Apply their knowledge of electrical circuits to make a working and functional circuit to create light.</li> <li>• Use tools with accuracy</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Use researched information to inform decisions.</li> <li>• Develop one idea in depth.</li> <li>• Produce detailed lists of components / materials and tools.</li> <li>• Select from and use a wide range of tools.</li> <li>• Cut accurately and safely to a marked line.</li> <li>• Apply their knowledge of electrical circuits to make a working and functional circuit make a motor turn.</li> </ul> | <p>As a designer, we will:</p> <ul style="list-style-type: none"> <li>• Use researched information to inform decisions.</li> <li>• Develop one idea in depth.</li> <li>• Produce detailed lists of components / materials and tools.</li> <li>• Refine their product – review and rework/improve.</li> <li>• apply their understanding of computing to programme, monitor and control their products.</li> </ul> |
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|                                |                                                                                                                                                                                |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Select from materials according to their functional properties.</li> <li>• Use appropriate finishing techniques to make their lamp look desirable and functional.</li> </ul>   | <ul style="list-style-type: none"> <li>• Select from and use a wide range of materials.</li> <li>• Use appropriate finishing techniques to make their merry go round look desirable.</li> </ul>                                        |                                                                                                                                                                                                |
| <b>Evaluate – from NC/ELGS</b> | <b>ELG Expressive Arts and Design</b> <ul style="list-style-type: none"> <li>• Share their creations, explaining the process they have used.</li> </ul>                        | <ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing products.</li> <li>• Evaluate their ideas and products against design criteria</li> </ul>                                            | <ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products</li> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>• Understand how key events and individuals in design and technology have helped shape the world</li> </ul> |                                                                                                                                                                                                         |                                                                                                                                                                                                                         |                                                                                                                                                                                                                                        |                                                                                                                                                                                                |
| <b>Evaluate</b>                | As a designer, we will: <ul style="list-style-type: none"> <li>• EYFS Children should say what they like about their vehicles and what they could change next time.</li> </ul> | As a designer, we will: <ul style="list-style-type: none"> <li>• Explore existing products and investigate how they have been made (including teacher-made examples).</li> <li>• Talk about their design as</li> </ul> | As a designer, we will: <ul style="list-style-type: none"> <li>• Decide how existing products do/do not achieve their purpose.</li> <li>• Discuss how closely their finished product meets</li> </ul>                                                                                                                                                    | As a designer, we will: <ul style="list-style-type: none"> <li>• Investigate similar products to the one to be made to give starting points for a design.</li> <li>• Research needs of user.</li> </ul> | As a designer, we will: <ul style="list-style-type: none"> <li>• Draw/sketch existing products in order to analyse and understand how products are made.</li> <li>• Identify the strengths and weaknesses of</li> </ul> | As a designer, we will: <ul style="list-style-type: none"> <li>• Research and evaluate existing merry-go rounds.</li> <li>• Consider user and purpose – where is their merry go round going to go and how is it appropriate</li> </ul> | As a designer, we will: <ul style="list-style-type: none"> <li>• Identify the strengths and weaknesses of their design ideas.</li> <li>• Report using correct technical vocabulary.</li> </ul> |

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|  |  | <p>they develop and identify good and bad points.</p> <ul style="list-style-type: none"> <li>• Say what they like and do not like about items they have made and attempt to say why.</li> <li>• Investigate key events and individuals in design and technology</li> </ul> | <p>their own design criteria.</p> <ul style="list-style-type: none"> <li>• Investigate key events and individuals in design and technology.</li> </ul> | <ul style="list-style-type: none"> <li>• Decide which design idea to develop.</li> <li>• Consider and explain how the finished product could be improved.</li> <li>• Discuss how well the finished product meets the user's design criteria.</li> <li>• Investigate key events and individuals in design and technology.</li> </ul> | <p>their design ideas in relation to purpose/user.</p> <ul style="list-style-type: none"> <li>• Consider and explain how the finished product could be improved.</li> <li>• Investigate key events and individuals in design and technology.</li> </ul> | <p>for the location?</p> <ul style="list-style-type: none"> <li>• Consider and explain how the finished product could be improved related to design criteria.</li> <li>• Investigate key events and individuals in design and technology.</li> </ul> | <ul style="list-style-type: none"> <li>• Discuss how well the finished product meets the design criteria having tested.</li> <li>• Investigate key events and individuals in design and technology.</li> </ul> |
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