# Subject Non- Negotiables –

Skills and knowledge components:

Progression document building from previous year's learning

## DT Curriculum Coverage

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

The national curriculum for design and technology aims to ensure that all pupils: ♣ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world ♣ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users ♣ critique, evaluate and test their ideas and products and the work of others ♣ understand and apply the principles of nutrition and learn how to cook.

### Key DT skills

**Design:**
Make appropriate suggestions for the appearance and materials for an item, consider how it will be made.

**Make:**
Choosing and using the appropriate tools, equipment and resources to make ***high quality*** prototypes and products ***following the design***.

**Evaluate:**
Critique, evaluate and test ideas and products, suggesting ideas for improvements and explaining how the product is suitable for purpose.

**Technical knowledge:**
Use and apply knowledge of materials, fixings and linkages to reinforce structures and build models with moving parts.

**Food and nutrition:**
Understand the principles of nutrition and healthy eating, use basic techniques for food preparation and cooking.

**Areas to be covered:** food, textiles, construction, technological developments. **These should incorporate:** health & safety, design, electronics & electricals, mechanics & engineering, tools & equipment.

| | Foundation | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| **Design** | Expressive Arts and Design (EAD) -exploring and using media and materials (EMM).<br>30-50 months<br>•Uses various construction materials.<br>•Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.<br>• Joins construction pieces together to build and balance.<br>•Realises tools can be used for a purpose<br>40-60 months<br>• Experiments to create different textures.<br>• Understands that different media can be combined to create new effects. | Design a functional product with a purpose for themselves and others.<br><br>Design a product to do a specific job.<br><br>Draw and label pictures of their design ideas.<br><br>Discuss their ideas and explain their choices. | Design an appealing and functional product with a purpose for themselves and others.<br><br>Use a set of criteria to aid the design process.<br><br>Draw, and make notes on, their design ideas.<br><br>Explain what they are making, and what they will need to use. | Design an appealing and functional product with a clear purpose and use for themselves and others.<br><br>Sketch and label diagrams of their design ideas.<br><br>Discuss their ideas and explain the purpose, choice of materials, any necessary changes and how it will be made.<br><br>Explain what they are making, why they are making it and what they will need to use. | Design an appealing and functional product for a particular audience.<br><br>Create design criteria for a product.<br><br>Use sketches, labelled diagrams and notes to explain their design.<br><br>Explain their ideas, the purpose, choice of materials, any necessary changes and how it will be made.<br><br>Explain what they are making, why they are making it and what they will need to use, using the design criteria. | Research existing products and develop design criteria.<br><br>Design functional, appealing products aimed at particular individuals or groups.<br><br>Create detailed design criteria for a product.<br><br>Communicate ideas by developing sketches, labelled diagrams and notes to support their design.<br><br>Communicate ideas through discussion, presentation and peer critique. | Research existing products to inform design choices and criteria, taking into consideration user needs.<br><br>Design innovative, functional, appealing products aimed at particular individuals or groups.<br><br>Develop a set of criteria, based on research, to aid design process.<br><br>Communicate ideas by using cross-sectional diagrams, exploded diagrams, prototypes, pattern ideas and computer-aided design. |

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| | • Manipulates materials to achieve a planned effect.<br>• Constructs with a purpose in mind, using a variety of resources. | | | | | Adapt designs, if needed, after design discussion., | Communicate ideas through oral and ICT presentations.<br><br>Adapt designs, where necessary, based of design feedback. |
| **Make** | • Uses simple tools and techniques competently and appropriately.<br>• Selects appropriate resources and adapts work where necessary.<br>• Selects tools and techniques needed to shape, assemble and join materials they are using.<br>**Early Learning Goal (EMM)**<br>**They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.** | Name the tools they are using and know how to use them safely.<br><br>Use given tools to cut, shape, join and finish products.<br><br>Explore different materials and components to find appropriate ways of joining materials. | Select and name appropriate tools and equipment needed from a given range.<br><br>Know which equipment is used for cutting, shaping joining and finishing.<br><br>Select from a wide range of materials and components, depending on use. | Select and name appropriate tools and equipment needed from a suggested range<br><br>Know and choose which equipment is used for cutting, shaping joining and finishing from a suggested range.<br><br>Know some characteristics of materials and components and select from a wide range of these, depending on use. | Select and name appropriate tools and equipment needed<br><br>Know and choose which equipment is used for cutting, shaping joining and finishing.<br><br>Know the characteristics of materials and components and select, depending on use. | Select, name and use appropriate tools and equipment safely and accurately.<br><br>Use some specialist equipment accurately and safely.<br><br>Select from and use a range of specific materials and components according to their specific use and appearance | Select from and use a wider range of specialist tools and equipment.<br><br>Use specialist equipment for a specific purpose accurately and safely.<br><br>Select from and use a wider range of specific materials and components according to their use and aesthetic properties. |
| **Evaluate** | (EAD)- being imaginative (BI)<br>40-60 months<br>•Create simple representations of events, people and objects.<br>**Early Learning Goal (BI)** | Explore, investigate and use existing products.<br><br>Say whether or not their product does the job it is supposed to.<br><br>Explain why their product is good. | Explore and evaluate existing products.<br><br>Say why a product is good (or not) and what job it does (and if it good / bad at this job).<br><br>Evaluate their product against their design criteria. | Explore and analyse existing products.<br><br>Consider why products are good (or not) and how effective they are at meeting their purpose.<br><br>Suggest ways of improving their own and others' work.<br><br>Consider how some products have helped the world. | Explore and analyse existing products against a set of criteria.<br><br>Consider how products were made, why they are good (or not) and how effective they are at meeting their purpose.<br><br>Suggest ways of improving their own and others' work based on how effective the product is. | Investigate, explore and analyse a range of existing products based on a set of criteria.<br><br>Evaluate their ideas, prototypes and products against a specific set of criteria.<br><br>Suggest ways of improving their own and others' work, using their criteria | Investigate and explore a range of existing products, considering construction and purpose.<br><br>Evaluate their ideas, prototypes and products against a specific set of criteria they have devised.<br><br>Suggest ways of improving own and |

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| | **Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology.** | | | | Consider how some people and products have helped the world. | Consider how some people and products have changed the world. | others' work, using specific criteria.<br><br>Identify and understand how key events and individuals in design and technology have helped shape the world. |
| **Technical knowledge** | Physical development- moving and handling 40-60 months•<br>Uses simple tools to effect changes to materials.<br>•Handles tools, objects, construction and malleable materials safely and with increasing control<br>Early learning goal<br>**They handle equipment and tools effectively** | Build structures and explore how they can be made stiffer and stronger using a range of materials.<br><br>Explore ways of joining cards to make it move (e.g. split pins).<br><br>Create models with wheels and axels. | Build structures and investigate how they can be made stronger, stiffer and more stable.<br><br>Explore different ways of joining similar materials together.<br><br>Create models with wheels, axels and hinges.<br><br>Explore and use levers and sliders to move part of their product. | Explore how to make structures stronger, stiffer and more stable using more / other materials.<br><br>Explore different ways of joining things together.<br><br>Create models which use wheels, axels, hinges to make specific parts move.<br><br>Explore and incorporate simple circuits and bulbs into their product. | Explore how to make structures stronger, stiffer and more stable using a variety of materials.<br><br>Explore and different ways of joining things together (both moving joints and fixed joints).<br><br>Create models which use wheels, axels, hinges and other moving parts for a specific purpose.<br><br>Explore and investigate series circuits, bulbs, buzzers and motors.<br><br>Use ICT to program and control a moving product. | Explain how to make structures stronger, stiffer and more stable using engineered designs (e.g. diagonal struts).<br><br>Explore and analyse a range of linkages (ways of fixing and joining materials – temporary, fixed and moving) to change movement (e.g. make it larger or varied).<br><br>Create models which use gears, pulleys, levers and linkages for a specific purpose.<br><br>Create models which use series circuits, switches, bulbs, buzzers and motors.<br><br>Use ICT to monitor, program and control their products. | Design and build more complex frameworks, using a range of materials to support mechanisms.<br><br>Apply understanding of how to strengthen, stiffen and reinforce more complex structures.<br><br>Understand and use CAM mechanisms to create moving models.<br><br>Understand and use a range of electrical systems in their products, such as series circuits, incorporating switches, bulbs, buzzers and motors.<br><br>Apply their understanding of computing to program, monitor and control their products. |
| **Cooking and nutrition** | | Understand which foods are healthy and which foods are treats. | Understand what a healthy and varied diet is. | Understand what a healthy, varied and balanced diet is. | Understand why we need to eat a healthy, varied and balanced diet. | Understand which foods will provide a healthy, varied and balanced diet. | Understand and apply the principles of a healthy and varied diet. |

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| | | Suggest healthy dishes to prepare and make.<br><br>Understand where some foods come from (meat, fruit and veg). | Use knowledge of healthy eating to prepare dishes.<br><br>Understand where food comes from (plant or animal). | Choose, prepare and cook dishes using some cooking techniques.<br><br>Understand where fruit, vegetables, meat and meat products come from. | Understand why we need particular food groups.<br><br>Choose, prepare and cook dishes using different cooking techniques.<br><br>Know which foods can be grown or reared locally. | Understand which food groups help our bodies to function.<br><br>Prepare and cook a variety of dishes using different cooking techniques based on a specific audience.<br><br>Understand why we can only grow some foods in our country and why we need to get some foods from other countries. | Understand which foods are sources of required nutrition (including minerals, vitamins, etc.)<br><br>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.<br><br>Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. |