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| **National Curriculum** | **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.

**Foundation Stage** The principal focus of Expressive Arts and Design in EYFS: The development of children’s artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe. Pupils should be taught to: * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
* Share their creations, explaining the process they have used.

**Key Stage 1** When designing and making, pupils should be taught to: **Design** * 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

**Make** * Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
* Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

**Evaluate** * Explore and evaluate a range of existing products
* Evaluate their ideas and products against design criteria

**Technical knowledge** * Build structures, exploring how they can be made stronger, stiffer and more stable
* Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

**Cooking and Nutrition*** Use the basic principles of a healthy and varied diet to prepare dishes
* Understand where food comes from.

**Key Stage 2** When designing and making, pupils should be taught to: **Design** * 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

**Make** * Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
* 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

**Evaluate** * Investigate and analyse a range of existing products
* Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
* Understand how key events and individuals in design and technology have helped shape the world

**Technical knowledge** * Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
* Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
* Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
* Apply their understanding of computing to program, monitor and control their products.

**Cooking and Nutrition*** Understand and apply the principles of a healthy and varied diet
* Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
* Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
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|  | ***Nursery Designer*** | ***Reception Designer*** | ***Year 1 Designer*** | ***Year 2 Designer*** |
| **Progression and Assessment Criteria** | ***Expressive Arts and Design**** ***Explore different materials freely, in order to develop their ideas about how to use them and what to make.***
* ***Develop their own ideas and then decide which materials to use to express them.***
* ***Join different materials and explore different textures.***
	+ *Offer opportunities to explore scale.*

*Suggestions:**• long strips of wallpaper**• child size boxes**• different surfaces to work on e.g., paving, floor, tabletop or easel** + *Listen and understand what children want to create before offering suggestions.*
	+ *Invite artists, musicians and craftspeople into the setting, to widen the range of ideas which children can draw on.*
	+ *Suggestions: glue and masking tape for sticking pieces of scrap materials onto old cardboard boxes, hammers and nails, glue guns, paperclips and fasteners.*
* ***Create closed shapes with continuous lines, and begin to use these shapes to represent objects.***
* *Help children to develop their drawing and modelmaking.*
* *Encourage them to develop their own creative ideas.*
* *Spend sustained time alongside them. Show interest in the meanings children give to their drawings and models. Talk together about these meanings.*
 | ***Expressive Arts and Design**** ***Return to and build on their previous learning, refining ideas and developing their ability to represent them.***
* ***Create collaboratively sharing ideas, resources and skills.***
	+ *Provide opportunities to work together to develop and realise creative ideas.*
	+ *Provide children with a range of materials for children to construct with.*
	+ *Encourage them to think about and discuss what they want to make.*
	+ *Discuss problems and how they might be solved as they arise. Reflect with children on how they have achieved their aims.*
	+ *Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue.*
	+ *Provide a range of materials and tools and teach children to use them with care and precision. Promote independence, taking care not to introduce too many new things at once.*

***ELGs: Expressive Arts and Design**** ***Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.***
* ***Share their creations, explaining the process they have used.***
 | ***Design, Make and Evaluate**** *Use my own ideas to make something. (S, DP, MZ, MB)*
* *Make a simple plan before making. (S, DP, MZ, MB)*
* *Choose appropriate resources and tools. (S, DP, MZ, MB)*
* *Explain to someone else how I want to make my product. (S, DP, MZ, MB)*

***Technical Knowledge**** *Describe how something works. (MZ)*
* *Make a product which moves. (MZ)*
* *Make my model stronger. (MZ)*

***Cooking and Nutrition**** *Know the difference between healthy and unhealthy food. (S, MB)*
* *Know the importance of my washing hands before cooking and eating. (S, MB)*
* *Cut and prepare food safely. (S)*
 | ***Design, Make and Evaluate**** *Think of an idea and plan what to do next. (GFL, TTT, LA)*
* *Choose tools and materials and explain why I have chosen them. (GFL, TTT, LA)*
* *Measure materials to use in a model or structure. ( TTT, LA)*
* *Explain what went well with my work. (GFL, TTT, LA)*
* *Explain why I have chosen specific materials. ( TTT, LA)*

***Technical Knowledge**** *Explain how something works. (TTT, LA)*
* *Make a product which uses mechanical components e.g. levers to move. (TTT, LA)*
* *Join materials and components in different ways. (TTT, LA)*

***Cooking and Nutrition**** *Talk about and explain the reason for the ingredients I am using. (GFL)*
* *Know how to follow a make a simple recipe. (GFL)*
* *Sort foods into the five main food groups (GFL)*
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| **Themes** | * ***Me and My Community/Exploring Autumn (C, A)***
* ***Starry Night/Winter Wonderland (S, W)***
* ***Move It (M)***
* ***Puddles and Rainbows (P)***
* ***Ready Steady Grow (R)***
* ***Tumble (T)***
 | * ***Me and My Community (C)***
* ***Exploring Autumn/Sparkle and Shine (E, Sp)***
* ***Let’s Explore/Build It Up (L, B)***
* ***Once Upon A Time (O)***
* ***Animal Safari/Creep, Crawl and Wriggle (A, C)***
* ***Sunshine & Sunflowers/Shadows & Reflections (S, R)***
 | * ***Superheroes (S)***
* ***Enchanted Woodlands (EW)***
* ***Paws, Claws and Whiskers (PCW)***
* ***Dinosaur Planet (DP)***
* ***Moon Zoom (MZ)***
* ***Memory Box (MB)***
 | * ***Street Detectives (SD)***
* ***The Great Fire of London (GFL)***
* ***Baddies, Towers and Tunnels (BTT)***
* ***Land Ahoy (LA)***
* ***Scented Garden (SG)***
* ***Humans (H)***
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| **Vocab** | * cut, shape, plan, make, build, twist, push, stick
 | * build, evaluate, construction, materials, wood, plastic, glass, fabric, metal, fix
 | * join, strengthen, stiffen, design, create, healthy, unhealthy, ingredients, mechanisms, levers, wheels, axles, technique, method
 | * measure, recipe, components, balanced diet, recipe, functional, purposeful, characteristics
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| **Famous** | * LEGO – Ole Kirk Christiansen
 | * Karl Benz – Mercedes Benz cars
* Wright Brothers – first flight
* Nestle – Willy Wonka - nutrition
 | * Ralph Lauren - fashion
* Toyota – car manufacture
* Joe Wickes – health, fitness and nutrition
 | * Mary Berry – cook and nutrition
* Charles Macintosh – raincoat
* Capability Brown- landscape gardener
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|  | ***Year 3 Designer*** | ***Year 4 Designer*** | ***Year 5 Designer*** | ***Year 6 Designer*** |
| **Progression and Assessment Criteria** | ***Design, Make and Evaluate*** * *Prove that my design meets some set criteria. (GM, T, MM)*
* *Design a product and make sure that it looks attractive. (GM, T, MM)*
* *Choose a material for both its suitability and its appearance. (GM, T, MM)*
* *Follow a step-by-step plan, choosing the right equipment and materials. (GM, T, MM)*
* *Select the most appropriate tools and techniques for a given task. (GM, T, MM)*
* *Work accurately to measure, make cuts and make holes. (GM, T, MM)*

*Identify how I could improve my product. (GM, T, MM)* ***Technical knowledge*** * *Know how to strengthen, stiffen and reinforce structures. (T, MM)*
* *Make a product using electrical or mechanical components. (MM)*

***Cooking and Nutrition**** *Know what makes a healthy and balanced diet. (GM)*
* *Describe how food ingredients come together. (GM)*
* *Know where food ingredients come from. (GM)*
 | ***Design, Make and Evaluate*** * *Use ideas from other people when I am designing. (BBB, TR, Po)*
* *Produce a plan and explain it. (BBB, TR, Po)*
* *Present a product in an interesting way. (BBB, TR, Po)*
* *Measure and join accurately.*
* *(BBB, TR, Po)*
* *Persevere and adapt my work when my original ideas do not work. (BBB, TR, Po)*
* *Evaluate and suggest improvements for my designs. (BBB, TR, Po)*
* *Evaluate products for both their purpose and appearance. (BBB, TR, Po)*
* *Explain how I have improved my original design. (BBB, TR, Po)*

***Technical knowledge*** * *Know how to strengthen, stiffen and reinforce materials and designs. (BBB)*

***Cooking and Nutrition**** *Know the importance of and how to make healthy food choices. (TR)*
* *Know how to be both hygienic and safe when using and preparing food. (TR)*

*Know how to store food safely. (TR)* | ***Design, Make and Evaluate*** * *Come up with a range of ideas after collecting information from different sources. (AI, SM, A)*
* *Produce a detailed, step-by-step plan. (AI, SM, A)*
* *Suggest alternative plans; outlining the positive features and draw backs. (AI, SM, A)*
* *Explain how a product will appeal to a specific audience. (AI, SM, A)*
* *Use a range of tools and equipment competently. (AI, SM, A)*
* *Make a prototype before making a final version. (AI, SM)*
* *Evaluate appearance and function against original criteria. (AI, SM, A)*

***Technical knowledge*** * *Make a product using both electrical and mechanical components. (AI, SM)*
* *Make a product using computer programming, monitoring and control. (SM)*

 ***Cooking and Nutrition**** *Know the different nutrients that are important to health and which foods contain these. (A)*
* *Show that I can be both hygienic and safe in the kitchen. (A)*

*Know where different foods come from and how they may be changed to help preserve or make them safer or tastier. (A)* | ***Design, Make and Evaluate*** * *Use market research to inform my plans and ideas. (BH, CW)*
* *Follow and refine my plans. (BH, CW)*
* *Justify my plans in a convincing way. (BH, CW)*
* *Show that I consider culture and society in my plans and designs. (BH, CW)*
* *Show that I can test and evaluate my products. (BH, CW)*
* *Work within a budget. (BH)*
* *Evaluate my product against clear criteria. (BH, CW)*

***Technical knowledge**** *Make a product using electrical components and a variety of types of electrical circuits. (CW)*
* *Make a product using computer programming, monitoring and control. (CW)*

***Cooking and Nutrition**** *Use food labels to help choose the most healthy or appropriate ingredients and foods. (BH)*
* *Use my understanding of healthy eating, hygiene and food safety to make my own menu. (BH)*
* *Understand some of the ethical issues and social influences on the foods we choose to eat. (BH)*
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| **Themes** | * ***Tremors (T)***
* ***Tribal Tales (TT)***
* ***Mighty Metals (MM)***
* ***Urban Pioneers (UP)***
* ***Gods and Mortals (GM)***
* ***Flow (F)***
 | * ***Burps, Bottoms and Bile (BBB)***
* ***I am Warrior (IW)***
* ***Traders and Raiders (TR)***
* ***Potions (Po)***
* ***Misty Mountain Sierra (MMS)***
* ***Playlists (Pl)***
 | * ***Off with her head (OWH)***
* ***Alchemy Island (AI)***
* ***Pharaohs (Ph)***
* ***Stargazers (S)***
* ***Scream Machine (SM)***
* ***Allotment (A)***
 | * ***Darwin’s Delights (DD)***
* ***Blood Heart (BH)***
* ***Frozen Kingdom (FK)***
* ***Child’s War (CW)***
* ***Golden Age of Islam (I)***
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| **Vocab** | * reinforce, electrical component, mechanical component, develop, model, appearance, aesthetic, gears, pulleys, levers, cams, bulb, buzzers, switches, motor
 | * research, adapt, analyse, hygiene, purpose, present, product, cooking, nutrition
 | * preservation, savoury, seasonality, grown, reared, prototype, technology, computer, programme, monitor, control, nutrients
 | * culture, society, budget, ethics
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| **Famous** | * Chang Heng - seismograph
* John Claudius Loudon – garden/park designer
* Cadbury family - nutrition
 | * Louis Pasteur – vaccination and pasteurisation
* Adolphe Sax – created the saxophone
* Mo Constantine – creator of Lush and the Bath Bomb
 | * Gillian McKeith – health and nutrition
* Nikola Tesla – inventor and engineer – AC electricity
* Charles Babbage – father of the computer
 | * Jamie Oliver – cook and nutrition
* Alexander Bell – inventor of the telephone
* Eli Whitney – inventor of the cotton machine
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