# Great Hollands Primary School

# Design and Technology Curriculum

# Design & Technology Curriculum

At GHPS, we provide pupils with opportunities to use their creativity and imagination to design and make purposeful products. Our DT curriculum is carefully created to equip all pupils with practical skills and knowledge of different techniques and an understanding of the characteristics of a range of materials. Through a variety of activities and projects, pupils work individually or as part of a team to apply their knowledge and understanding to design, plan, make and evaluate, considering any interlinked social, cultural and environmental issues.

We teach the National Curriculum with the intent that DT should be taught in all year groups through at least one topic per term, including cooking and nutrition activities. Pupils develop basic skills in the Early Years, such as cutting and joining, which are built on and developed in Key Stages 1 and 2.

At Key Stage 1, pupils learn how to design, plan and communicate their ideas effectively to design a product with purpose, which they achieve through drawing, talking, templates and mock-ups. They learn how to select and work with different tools, equipment and materials, giving them shape, using simple finishing techniques and mechanisms. During these processes, pupils often work together to evaluate existing products and use critical thinking to identify what could be done differently or how they could further improve their work. In cooking and nutrition activities, pupils gain knowledge about the basic principles of a healthy diet and an understanding of where the food comes from.

At Key Stage 2, pupils build on existing skills and use research to create their own design criteria, develop models and communicate through annotated sketches, cross-sectional diagrams, patterns and computer-aided design. They can select from a wider range of tools to perform practical tasks and technical knowledge is further developed. Pupils apply their understanding of how to strengthen and reinforce more complex structures, for instance when building with wood, and evaluate their work against their own criteria. The use of mechanical and electrical systems gives opportunities to explore movements and circuits using pulleys, cams and bulbs, with some projects using computing to program, monitor and control. In cooking and nutrition, children follow safe food procedures to create dishes with a focus on seasonality of products.

# GHPS DT Content Overview

| Term | | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| EYFS 1 Nursery | **Topics** | *What makes me … me?* | *How can I stay safe and healthy?* | *What makes a home and school?* | *Are things the same everywhere?* | *How do things grow and change?* | *How can I take care of my world?* |
| | **DT Focus** Creating with materials | **Exploring small world and role play areas** Exploring the environment to develop imaginative play | **Joining materials** Explore joining/combining different materials | **Building Models** Develop own ideas to create models of houses and homes | **Exploring textures** Exploring and combining textures in different ways | **Combining materials** Combining materials and ingredients to make models | **Exploring together** Explore materials and constructions sets together |
| | **ELG/DM** | **A B C D E F** | **A B C D E F** | **A B C D E F** | **A B C D E F** | **A B C D E F** | **A B C D E F** |
| | **Props and resource** | **Nursery Rhymes** | **Tiger who came to Tea<br>Gingerbread Man** | **Three Little Pigs<br>Goldilocks & Three Bears** | **Walking through Jungle<br>Handa's Surprise** | **The Hungry Caterpillar<br>Jack and the Beanstalk** | **Dear Zoo<br>The Coral Kingdom** |
| | **Application of Development Matters Study** | Use small world equipment to explore the Nursery environment and develop imaginative play and role play.<br>Retell Nursery Rhymes using props. | Explore the role play and small world areas, range of materials deciding what to do with them.<br>Take part in a simple pretend play of the Tiger's Tea.<br>Combine materials to make a gingerbread man.<br>Develop cutting and sticking skills.<br>Explore with a range of construction sets.<br>Join materials and explore textures to make a collaborative collage linked to their story. | Explore the role play and small world areas, range of materials deciding what to do with them.<br>Develop cutting and sticking skills.<br>Explore with a range of construction sets to make own ideas and different houses.<br>Combine a range of natural materials to make models of houses, developing ideas and deciding the materials to use.<br>Combine ingredients to make porridge. | Explore the role play and small world areas, range of materials deciding what to do with them.<br>Develop cutting and sticking skills.<br>Explore with a range of construction sets to make own ideas and a favela.<br>Join different materials and explore textures to make a jungle, deciding materials to use.<br>Combine ingredients to make a fruit rice cake basket. | Explore the role play and small world areas, range of materials deciding what to do with them.<br>Develop cutting and sticking skills.<br>Explore with a range of construction sets.<br>Join different materials and explore textures to make a model of a caterpillar and plant.<br>Combine ingredients to make healthy bugs and caterpillar. | Explore the role play and small world areas.<br>Develop cutting and sticking skills.<br>Explore a range of materials, deciding what to do with them.<br>Explore with a range of construction sets to group ideas and a zoo.<br>Join different materials and explore textures to make a seascape, deciding materials to use.<br>Combine ingredients to animal themed healthy snacks. |
| | **ELG**<br>**Expressive Arts and Design (EAD)**<br>**Creating with materials** | **Development Matters**<br>A. Take part in simple pretend play, using an object to represent something else even though they are not similar.<br>B. Begin to develop complex stories using small world equipment like animal sets, dolls and dolls houses, etc.<br>*C.* Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. | | | D. Explore different materials freely, to develop their ideas about how to use them and what to make.<br>E. Develop their own ideas and then decide which materials to use to express them.<br>F. Join different materials and explore different textures. | | |

| EYFS 2 Reception | | | | | | | |
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| | **Topics** | *What will my first Autumn at school be like?* | *Why are people, places, times and things special?* | *What changes in Winter and is it the same everywhere?* | *Who helps us to stay safe, healthy and well* | *How is life in the UK different to other places around the world?* | *Have things always been the same?* |
| | **DT Focus**<br>**Creating with materials** | **Joining & combining to make things**<br>Developing skills in cutting, joining & combining material | **Joining & combining making them move**<br>Explore colour mixing, textures & showing feelings | **Building & making environments**<br>Applying cutting and joining skills to make a diorama | **Building and making with paper & card**<br>Applying skills to build and make card and paper models | **Exploring making things stronger**<br>Explore strength of materials to build a bridge | **Exploring making things float**<br>Explore properties to build a junk model boat |
| | **ELG/DM** | **1 2 3 A B C D** | **1 2 3 A B C D** | **1 2 3 A B C D** | **1 2 3 A B C D** | **1 2 3 A B C D** | **1 2 3 A B C D** |
| | **Props and resource for** | **Little Red Hen**<br>**The enormous Turnip** | **Three Little Pigs**<br>**The Gingerbread Man** | **Mr Wolf's Week**<br>**Going on a Bear Hunt** | **How to catch a star**<br>**The Hungry Caterpillar** | **Jack and the Beanstalk**<br>**Billy Goats Gruff** | **Little Red Riding Hood**<br>**Mr Gumpy's Outing** |
| | **Application of Development Matters** | Provide opportunities to practise cutting skills using snipping and straight, curved and zig-zag lines.<br>Learn and use a range of joining techniques to combine materials, glue stick, PVA glue, tapes, elastic bands, string etc. (Rangoli).<br>Use a range of construction sets to make collaborative models including a model of a farm.<br>Revisit model to improve it.<br>Collaboratively, prepare and combine a range of vegetables to make different soups - taste and choose favourite.<br>Make collaborative Autumn tree. | Apply cutting and joining skills to combine materials to make a model of a firework.<br>Explore moving parts on toys inc. ones with magnets.<br>Combine & join materials to make a simple cup catcher & spinning magnet toy.<br>Use range of construction sets to make collaborative models inc. a model of their special place & talk about it.<br>Combine ingredients to make a gingerbread man & decorate - noting change in state of sugar when water is added.<br>Make Mendiant for Hannukah - noting change in state of chocolate when heated.<br>Make a salt dough tealight holder for a Christmas present – using artistic effects to decorate.<br>Christmas card. | Apply cutting and joining skills to combine materials to make a model of an environment – jungle, sea or arctic. Pupils return to it and build up overtime to make a quality product.<br>Use a range of construction sets to make collaborative models including a model of different environments and include small world animals.<br>Combining ingredients to make cookies and hot chocolate after winter walk.<br>Note changes in mixing and heating.<br>Combine materials to make pancakes for Shrove Tuesday – children select own fillings and talk about why and what they did.<br>Make collaborative Winter tree. | Apply cutting and joining skills to explore paper craft to make 3D models of caterpillars & butterflies.<br>Join different junk modelling materials to make an emergency vehicle model. Pupils return to it to decorate and make a quality model.<br>Explore different fruits and how they are prepared.<br>Plan and make a simple fruit salad.<br>Explore different vegetables and dips to make heathy crudité - taste and talk about favourites.<br>Grow cress and combine ingredients to make an egg and cress sandwich – exploring textures<br>Mother's Day and Easter cards.<br>Make collaborative Spring tree. | Explore different properties of materials including what happens when wet & dry - talk about different uses for them.<br>Explore strength of materials and how to strengthen paper to make a bridge to link two places. Link to story – must support the goats. Share creations and explain how they made them.<br>Use a range of construction sets to make collaborative models including a model of different places around the world and include small world people.<br>Combining ingredients to make African crunchies – omit nuts and use pumpkin seeds and dried fruit - and Brazilian Brigadeiro. Note changes in mixing and heating. | Apply learning from exploring materials & floating and sinking to decide best materials to make a boat.<br>Make a boat to float on the water – revisiting to refine.<br>Test using animals, like Mr Gumpy and movements in the water. Share with peers and explain the processes.<br>Use range of construction sets to make collaborative models inc. model of castle & include small world people.<br>Make crowns & capes for the people from card and paper.<br>Combine ingredients to make Laddus from Asia to celebrate Eid.<br>Make a Victoria Sandwich cake and traditional lemonade for end of term celebration with parents.<br>Father's Day cards.<br>Make collaborative Summer tree. |
| | **ELG**<br>**Expressive Arts and Design (EAD)**<br>**Creating with materials** | **Early Learning Goals**<br>1. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.<br>2. Share their creations, explaining the process they have used.<br>3. Make use of props and materials when role playing characters in narratives and stories. | | | **Development matters**<br>A. Explore, use and refine a variety of artistic effects to express their ideas and feelings.<br>B. Return to and build on their previous learning, refining ideas and developing their ability to represent them.<br>C. Create collaboratively, sharing ideas, resources and skills.<br>D. Develop storylines in their pretend play. | | |

| Year 1 | | | | | | | |
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| | **Topics** | *What makes me special?* | *How are the toys we play with made?* | *Why was a castle built here? Windsor Castle* | *What makes me proud of our place?* | *Who lives in the Animal Kingdom?* | *How did families have fun in the past?* |
| | **DT Focus** | **Healthy Snacks**<br>Preparing a variety of healthy crudities | **D&M Catch a ball toy**<br>Joining reclaimed materials and structures together | **D&M Castle Drawbridge**<br>Winding mechanism fixed to sheet materials | | **D&M Animal Puppet**<br>Cutting and joining textiles | **Fruit Salad**<br>Preparing and combining a variety of fruits |
| | **Skills** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** |
| | **Application of Year 1 Programme of Study** | Cooking – preparing vegetable crudities for a healthy snack. | Explore different toys and how they look and function.<br>Design a toy that is both functional and attractive to children.<br>Describe the materials I have used to make my structure.<br>Measure and mark out the materials I need for my structure.<br>Finish off my work so it looks neat and tidy.<br>Evaluate the toy against the original design. | Explore and look at different models using a winding mechanism.<br>Through history understand what a castle looks like and know the parts of a castle.<br>The children will design their own castle, thinking about the materials needed.<br>Explore how they can make their drawbridge work.<br>Make their own castle.<br>Evaluate their castle against their original design. | | Explore a range of glove puppets, the materials used and how the puppet is constructed.<br>Describe textiles by the way they feel.<br>Practice drawing around and cutting out a template.<br>Measure, mark out and cut fabric.<br>Join fabrics using glue.<br>Decorate using glue.<br>Compare puppet to original design and evaluate it for functionality and design. | Cooking – preparing fruits to make a picnic fruit salad. |
| | **KS1 Skills** | When designing and making, pupils should be taught to use the following:<br>**1. DEVELOPING, PLANNING AND COMMUNICATING IDEAS**<br>• Design purposeful, functional, appealing products for themselves and other users based on design criteria.<br>• Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.<br>• Develop ideas by shaping materials and putting together components.<br>• Plan by suggesting what to do next as ideas develop.<br>**2. WORKING WITH TOOLS, EQUIPMENT, MATERIALS AND COMPONENTS TO MAKE QUALITY PRODUCTS**<br>• Select tools, techniques and materials from a range selected by the teacher.<br>• Explore the sensory qualities of materials select according to characteristics. | | | | • Measure, mark out, cut and shape.<br>• Assemble, join and combine materials.<br>• Use simple finishing techniques.<br>**3. EVALUATING PROCESSES AND PRODUCTS**<br>• Explore and evaluate a range of existing products.<br>• Evaluate their ideas and products against design criteria, identify what they could have done differently or how they could improve work in the future.<br>**4. KNOWLEDGE AND UNDERSTANDING OF MATERIALS AND COMPONENTS**<br>• Learn about the working characteristics of materials (e.g., folding paper, plaiting yarn to make it stronger).<br>• How mechanisms can be used in different ways (e.g., wheels and axles that allow movement). | | |

| Year 2 | | | | | | | |
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| | **Topics** | *What happened in the Great Fire?* | *How can we make a healthy lunchbox?* | *What is the best way for Mrs Armitage to travel?* | *What makes us like other animals?* | *What do plants need to grow?* | *How would my life be different if I lived in the Amazon?* |
| | **DT Focus** | | **D&M A Healthy Lunchbox**<br>Preparing & combining foods | **D&M A Vehicle**<br>Joining reclaimed materials, mechanisms-axles & wheels | **D&M Animal Diorama**<br>Mechanisms-levers and slides with sheet materials | **Where food is from**<br>Learning animals, plants and countries our food is from | **Brazilian Bean Salad**<br>Making and tasting a traditional dish |
| | **Skills** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** |
| | **Application of Year 2 Programme of Study** | | Undertake surveys to establish food preferences for a healthy lunchbox, remember healthy foods and 5-a-day.<br>Develop their understanding of designing and making with food – remember the importance of healthy eating.<br>Make choices based on the properties of different fruit and vegetables.<br>Design and make a product for a healthy lunchbox to encourage them to eat more fruit & vegetables.<br>Investigate and taste different fruits & vegetables.<br>Develop vocabulary to describe the appearance, taste, smell and texture.<br>Apply hygienic practices.<br>Use basic equipment and tools effectively and safely. | Learn about wheels and axles & how to use these when making wheeled vehicles for a specific purpose.<br>Look at two parts of the vehicle: the working parts/mechanisms & chassis.<br>Think about what the vehicle body will look like.<br>Look at the chassis & explain the types of fixed wheel and fixed axle.<br>Make a prototype.<br>Using acquired knowledge of vehicles & considering Mrs Armitage's needs, discuss what vehicle type would be suitable for her & why.<br>Design & make a new vehicle for Mrs Armitage using ideas from investigating vehicles.<br>Apply basic measuring skills, test their vehicles, evaluate their finished product. | Link the learning in geography on climates in the desert, rainforest, ocean and polar region.<br>Develop their understanding of how movement can be created by investigating everyday products.<br>Develop their understanding of how movement can be created by making different types of mechanisms, such as levers, wheels and sliders, have experience and information to draw on when developing their own ideas.<br>Sketch a design based on their ideas.<br>Create their diorama with moving animals in the desert, rainforest, ocean or polar region.<br>Evaluate their finished product. | Exploring where food comes from animal, plant and country. | Making and tasting a traditional Brazilian dish. |
| | **KS1 Skills** | When designing and making, pupils should be taught to use the following:<br>**1. DEVELOPING, PLANNING AND COMMUNICATING IDEAS**<br>• Generate ideas from their own and others' experience.<br>• Develop ideas by shaping materials and putting together components.<br>• Talk about ideas.<br>• Plan by suggesting what to do next as ideas develop.<br>• Communicate ideas using a variety of methods, including drawing and models.<br>**2. WORKING WITH TOOLS, EQUIPMENT, MATERIALS AND COMPONENTS TO MAKE QUALITY PRODUCTS**<br>• Select tools, techniques and materials from a range selected by the teacher.<br>• Explore the sensory qualities of materials. | | | • Measure, mark out, cut and shape.<br>• Assemble, join and combine materials.<br>• Use simple finishing techniques.<br>**3. EVALUATING PROCESSES AND PRODUCTS**<br>• Talk about ideas, saying what they like and dislike.<br>• Identify what they could have done differently or how they could improve work in the future.<br>**4. KNOWLEDGE AND UNDERSTANDING OF MATERIALS AND COMPONENTS**<br>• Learn about the working characteristics of materials (e.g., folding paper, plaiting yarn to make it stronger).<br>• How mechanisms can be used in different ways (e.g., wheels and axles that allow movement). | | |

| Year 3 | | | | | | | |
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| | **Topics** | *How did Britain change from the Stone Age to the Iron Age?* | *What is Britain and the UK like now?* | *Who were the greatest builders?* | *What do plants need to stay healthy?* | *How is a region of Mexico and the UK the same and/or different?* | *What forces move (make) mountains?* |
| | **DT Focus** | | **Traditional UK food**<br>Explore regional dishes and D&M own Pasty | **D&M Frames & Displays**<br>Join materials for structure<br>Egyptian Koshan Rice | **Mexican Dish**<br>Make & taste Mexican dish<br>Shadow Stick Puppets | **D&M Mayan Mini Bag**<br>Cutting and joining fabrics adding handles & fastener | |
| | **Skills** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** |
| | **Application of Year 3 Programme of Study** | | Learn about how and where potatoes are grown & types. Explore different ways potatoes can be cooked & used in different regional dishes. Look at combination of meat, vegetables & potato. Prepare, cook and taste regional dishes.<br>Cottage pie - Irish - mash (compare with hotpot and roast beef and Yorkshire pudding)<br>Cornish Pasty – pastry. Explore healthier options – wedges instead of chips; Welsh Rarebit – topping. Explore flavourings for porridge – Scotland.<br>Look at options for fillings for a pasty – design, make and evaluate own pasty. | Investigate ways that artwork can be displayed, look at the impact of framing & types. Explore ways to make frames stable & freestanding. Explore joining and strengthening techniques. Create design criteria & design frame using annotated drawings, select & use appropriate materials. Measure, cut, join, using tools safely to make a frame to meet design criteria. Suggest alternatives to address design issues. Use to display artwork. Evaluate photo frame against design criteria.<br>Make & taste Egyptian Koshan rice. | Follow instructions to make shadow stick puppet.<br>Make and taste a Mexican dish. | Look at images of Mayan gods and notice they are carrying a small bag – what did they carry? Look at Mayan bags noting style and colourful textures. Note materials used. Explore ways to join fabrics and make secure fastenings. Explore ways to create designs and decorate. Set design criteria to carry object in hand or shoulder and select the appropriate using colourful Mayan designs.<br>Design bag with annotated drawings. Make a pattern and cut fabric and join to make product. Decorate and test using design criteria and evaluate. | |
| | **KS2 Design Process Skills** | When designing and making, pupils should be taught to:<br>**1. DESIGN, PLANNING AND COMMUNICATING IDEAS**<br>• 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.<br>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.<br>**2. MAKING QUALITY PRODUCTS**<br>• Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.<br>• Suggest alternative ways of making a product if the first attempt fails.<br>• Explore the sensory qualities of materials and how to use them.<br>• Measure, mark out, cut and shape materials accurately.<br>• Use finishing techniques to strengthen & improve the appearance of the product.<br>• Follow safe procedures for food safety and hygiene. | | | **3. EVALUATING PROCESSES AND PRODUCTS**<br>• 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.<br>• Understand how key events and individuals in design and technology have helped shape the world.<br>**4. TECHNICAL KNOWLEDGE**<br>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.<br>• Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages) to make things move in different ways.<br>• Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors) including switches.<br>• Apply their understanding of computing to program, monitor and control their products. | | |

| Year 4 | | | | | | | |
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| | **Topics** | *What legacies did the Ancient Greeks leave on modern culture?* | *How was William Shakespeare influenced by the Ancient Greeks?* | *What did the Romans leave behind?* | *What makes Italy roar?* | *How did the loss of the cacao bean contribute to the collapse of the Mayan Empire?* | *How does chocolate move through our digestive system?* |
| | **DT Focus** | **Greek Salad**<br>Combining foods to make and taste a traditional dish | **D&M Lighting Up**<br>Control and electrical combined with sheet mat | | **Pizza and Pasta**<br>Combining foods to make and taste a traditional dish | **D&M Woven Packing & Creating Hot Chocolate**<br>Strengthen structures-with sheet materials & weaving | **D&M Moving Model**<br>Mechanisms-levers & slides with reclaimed mat - body |
| | **Skills** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** |
| | **Application of Year 4 Programme of Study** | Making and tasting Greek Salad. | Explore products that light up – discuss purpose & function, materials and techniques.<br>Explore making circuits, joining and securing the different materials.<br>Explore ways to create parts.<br>Explore ways to make switches.<br>Set criteria and design and show in a cross-sectional annotated diagram.<br>Select materials and make design using tools safely.<br>Review and adapt as needed during making.<br>Review finished product against criteria. | | Making and tasting Italian pizza and pasta. | Explore packaging – form and presentation.<br>Explore weaving and relevance to Mayans.<br>Explore folding, scoring and joining materials. Make a model slide box, make mock ups including dividers.<br>Set design criteria and design packaging in exploded diagram with plan.<br>Select tools and materials needed and make product, cutting and combining materials.<br>Use finishing techniques to add a woven outer slide case.<br>Evaluate finished product against criteria.<br>Make hot chocolate and explore flavours. | Explore moving models – what moves, why & how.<br>Explore levers and slides using card mock ups.<br>Set design criteria.<br>Design model of the human body with moving parts – in annotated diagram measure using mm and then use scoring and folding to shape materials accurately with a focus on precision.<br>Make cuts (scissors, snips, saw) accurately, improve technique.<br>Make holes (punch, drill) accurately.<br>Use finishing techniques.<br>Evaluate finished product against criteria. |
| | **KS2 Design Process Skills** | When designing and making, pupils should be taught to:<br>**1. DESIGN, PLANNING AND COMMUNICATING IDEAS**<br>• Use research & develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.<br>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.<br>**2. MAKING QUALITY PRODUCTS**<br>• Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.<br>• Suggest alternative ways of making a product if the first attempt fails.<br>• Explore the sensory qualities of materials and how to use them.<br>• Measure, mark out, cut and shape materials accurately.<br>• Use finishing techniques to strengthen & improve the appearance of the product.<br>• Follow safe procedures for food safety and hygiene | | | **3. EVALUATING PROCESSES AND PRODUCTS**<br>• 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.<br>• Understand how key events and individuals in design and technology have helped shape the world.<br>**4. TECHNICAL KNOWLEDGE**<br>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.<br>• Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages) to make things move in different ways.<br>• Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors) including switches.<br>• Apply their understanding of computing to program, monitor and control their products. | | |

| Year 5 | | | | | | | |
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| | **Topics** | *Why did people invade and settle in Britain?* | *Where did they settle and why?* | *How did the Kingdom of England come to be?* | | *Where in the World?* | *What is the power of The River Thames?* |
| | **DT Focus** | **Where is food from?** Know where grown reared, caught and processed - UK | **D&M Building with Wood** Joining sheet material | **Bread** | **D&M Moving Model** Where is food from? Mechanisms | **D&M Controllable Vehicles** Construction kits | |
| | **Skills** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** |
| | **Application of Year 5 Programme of Study** | Know where and how a variety of ingredients are grown, reared, caught and processed – UK. | Investigate and evaluate examples.<br>Explore ways to reinforce the structure.<br>Explore ways to join sectioned wood 90 degrees and other angles.<br>Explore with card ways to make other shapes needed.<br>Explore ways to make moving parts.<br>Set design criteria and generate ideas.<br>Create a detailed exploded diagram with labels.<br>Make the product and adapt as needed.<br>Evaluate against criteria, identifying further improvements. | Make bread - one off lesson as part of science unit – irreversible changes. | Know where some food comes from – world.<br>Explore and investigate movement of things.<br>Explore movement with cams & different cam shafts.<br>Set design criteria.<br>Design product with detailed labelled cross sectional or exploded diagram to show the working parts.<br>Build the working mechanism making precision holes and lining up carefully.<br>Create and shape other details to finish product.<br>Evaluate against criteria. | Investigate vehicles, focus on power and how movement is transmitted.<br>Explore switches, pulleys and motors using construction kits.<br>Set criteria and draw design.<br>Create using construction kits adapting as building.<br>Explore computer control programme.<br>Apply understanding of computing to program, monitor and control product.<br>Use science skills (to dim lights or control speed) to alter the way electrical products behave.<br>Evaluate product against design criteria. | |
| | **KS2 Design Process Skills** | When designing and making, pupils should be taught to:<br>**1. DESIGN, PLANNING AND COMMUNICATING IDEAS**<br>• 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.<br>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.<br>**2. MAKING QUALITY PRODUCTS**<br>• Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.<br>• Suggest alternative ways of making a product if the first attempt fails.<br>• Explore the sensory qualities of materials and how to use them.<br>• Measure, mark out, cut and shape materials accurately.<br>• Use finishing techniques to strengthen & improve the appearance of the product.<br>• Follow safe procedures for food safety and hygiene. | | | **3. EVALUATING PROCESSES AND PRODUCTS**<br>• 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.<br>• Understand how key events and individuals in design and technology have helped shape the world.<br>**4. TECHNICAL KNOWLEDGE**<br>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.<br>• Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages) to make things move in different ways.<br>• Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors) including switches.<br>• Apply their understanding of computing to program, monitor and control their products. | | |

| Year 6 | | | | | | | |
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| | **Topics** | *What is out of this World?* | *How do living things, including us, stay healthy?* | *What was the significance of the Battle of Britain?* | *Why do some creatures no longer exist?* | | *How successful are we as entrepreneurs?* |
| | **DT Focus** | | **Phone Case**<br>Textiles combined with cross stitch design | **Anderson Shelter**<br>Cooking during rationing | | **Biscuits**<br>Combining food ingredients, healthy eating & seasonality | **Food and drink entrepreneurs**<br>What products can be made and sold for profit |
| | **Skills** | **1 2 3 4** | **1 2 3 4** | **1 2 3 4** | | **1 2 3 4** | **1 2 3 4** |
| | **Application of Year 6 Programme of Study** | | Compare different phone cases discussing sizes, materials, appearance, etc.<br>Look at how they are constructed, joined and decorated.<br>Explore patterns, seam allowances and make mock up using pattern from paper to check fit and size – adjust.<br>Explore decorating techniques & cross stitch.<br>Set criteria and generate ideas – draw labelled design with colours.<br>Make a step-by-step plan – showing when each part is to be completed.<br>Apply skills to making.<br>Evaluate against criteria. | Look at images and discuss function, pros and cons and effectiveness in the war.<br>Draw detailed, annotated drawing.<br>Explore ways to stiffen materials and join frame – evaluate these.<br>Agree criteria.<br>Make detailed design, annotated in detail including materials and joins.<br>Pupils cut, shape and join the materials.<br>Pupils test the shelters, using fair testing and evaluate the success of them – suggesting ways to improve. | | Explore seasonality of food linked to work on seasons & hemispheres.<br>Investigate range of biscuits.<br>Explain different ingredients can be added at different points before and after cooking.<br>Explore things that could be added & impact of cooking.<br>Agree design criteria and purpose.<br>Pupils make a flow diagram to show ingredients and when added.<br>Make, review and taste.<br>Evaluate against criteria.<br>Link to science irreversible changes and explore healthy diet.<br>Work in a safe, hygienic way. | Exploring how ingredients can be combined and sold to make money, e.g., lemonade, biscuits, fruit kebabs.<br>Look at food hygiene. |
| | **KS2 Design Process Skills** | When designing and making, pupils should be taught to:<br>**1. DESIGN, PLANNING AND COMMUNICATING IDEAS**<br>• Use research & develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.<br>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.<br>**2. MAKING QUALITY PRODUCTS**<br>• Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.<br>• Suggest alternative ways of making a product if the first attempt fails.<br>• Explore the sensory qualities of materials and how to use them.<br>• Measure, mark out, cut and shape materials accurately.<br>• Use finishing techniques to strengthen & improve the appearance of the product.<br>• Follow safe procedures for food safety and hygiene. | | | **3. EVALUATING PROCESSES AND PRODUCTS**<br>• 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.<br>• Understand how key events and individuals in design and technology have helped shape the world.<br>**4. TECHNICAL KNOWLEDGE**<br>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.<br>• Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages) to make things move in different ways.<br>• Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors) including switches.<br>• Apply their understanding of computing to program, monitor and control their products. | | |