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| **Ackton Pastures Primary Academy****Design and Technology Progression Grid** |
|  In DT, like all other subjects, we recognise the importnace of the methods and practice of teaching we choose to use in enabling pupils to know more, understand more and remember more. In DT, the following approaches will be used and be evident in pupils’ books, in order to ensure that the DT learning opportunities are as effective as possible and that pupils progress throughout the year and across year groups during their DT experiences in school: |
| National Curricumlum statements - Key stage 1  |
| Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. 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 preparedishes
* understand where food comes from.
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| National Curricumlum statements - Key stage 2 |
| Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. 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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|  | **Early Years** | **Key Stage One** | **Lower Key Stage Two** | **Upper Key Stage Two** |
|  | **Nursery:** | **Reception:** | **Year One:** | **Year Two:** | **Year Three:** | **Year Four:** | **Year Five:** | **Year Six:** |
| Research | ELG• Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. • Children represent their own ideas, thoughts and feelings through design and technology.  | • Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.  • Children represent their own ideas, thoughts and feelings through design and technology.  |  • Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.  • Children represent their own ideas, thoughts and feelings through design and technology.  |  • Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.  • Children represent their own ideas, thoughts and feelings through design and technology.  |
| Design | • Talk about what they want to make, in relation to the design brief and their research. • Draw a labelled picture of their product, which may include parts, components, materials. • Choose the materials/ingredients/tools they will use, from a selection. • Write a list of the materials/ ingredients/tools they will need.  **Food and cookery** • Understand that the basic principles of a healthy and varied diet feature within their design. • Create a basic recipe, using drawings and labels. | • Use their research to develop some of their own design criteria. • Draw a fully labelled sketch/diagram of their product, including some measurements. • Indicate where electrical components will go and briefly explain how they will function. • Choose the materials/ ingredients /tools they will use, based on their suitability for the task. • List the materials/ ingredients/tools they will need. • Order the main stages of making. • Use computer aided design.  **Food and cookery** • Use the principles of a healthy and varied diet to help inform their design decisions. • Understand seasonality and locality of food and use this knowledge when designing their product. • Create/adapt a recipe, including some weight/volume measurements. | • Use their research to develop their own design criteria. • Draw a fully labelled/annotated sketch/diagram of their product, including measurements and cross-sections. • Indicate where/how materials will be joined in order to create a stable structure. • Indicate where electrical components will go and explain how they will function. • Explain how computer programming will control the product. • Indicate where mechanisms will go and explain how they will function • Choose the materials/ingredients/tools they will use, based on their suitability for the task, including sourcing their own materials where appropriate. • List the materials/ ingredients/tools they will need. • Write (brief) instructions for how they intend to make their product.  **Food and cookery** • Independently apply the principles of a healthy and varied diet to inform their design decisions.  • Apply their knowledge of seasonality and locality of food to inform their design decisions. • Create/adapt a recipe, including weight/volume measurements. |
| Make - Construction | • Mark materials before cutting and sometimes measure.• Cut paper and other materials safely and with increasing accuracy. • Begin to choose the most effective joining methods for the task/materials. • Use simple components, such as split pins. • Test their product as they work, to see if it meets the requirements of the intended user. • Apply their knowledge of materials to make a structure stiffer/ more stable as they work. | Measure and mark materials before cutting. • Cut materials accurately, using appropriate tools. • Score and fold paper/card accurately. • Join a range of materials using a variety of methods, usually choosing the method most suited to the task. • Test their product as they work, making informed adjustments to ensure their product meets the design criteria. • Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work. • Create a basic electrical circuit and incorporate it into their product. • Pay attention to the finishing of their product. | • Measure and mark materials with increased accuracy, before cutting. • Cut materials accurately, using appropriate tools. • Join a range of materials using a variety of suitable methods. • Test their product as they work, making informed adjustments and striving to address any anticipated problems. • Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work. • Create a working mechanism (pulleys and gears) and incorporate it into their product. • Create a basic electrical circuit and incorporate it into their product. • Programme a computer to control their product. • Create a polished and well-finished product. |
| Make - Textiles | Making/using simple paper pattern pieces. • Cutting fabric carefully.• Learning sewing basics – threading a needle, knotting your thread, finishing off. • Sewing using running stitch, attempting to produce neat, equal stitches • Creating a design on fabric using applique.• Creating a design on fabric using pens/paint. | • Making/using simple paper pattern pieces. • Cutting fabric carefully.• Learning sewing basics – threading a needle, knotting your thread, finishing off. • Sewing using running stitch, attempting to produce neat, equal stitches • Creating a design on fabric using applique. • Creating a design on fabric using pens/paint. • Sewing basics – threading a needle, knotting your thread, finishing off.• Sewing on simple components – buttons/sequins/ribbons.• Using stuffing | * Making/using a paper pattern (front and back pieces).

• Including a seam allowance. • Cutting fabric accurately. • Sewing basics – threading a needle, knotting your thread, finishing off. • Sewing neatly using running stitch/back stitch. • Turning out so stitching is hidden. • Creating designs on fabric using applique/pens/ paint. • Incorporating a fastening component – button/zip/press stud. |
| Make- Food | • Observe basic food hygiene procedures with support – washing hands; washing fruit/veg; keeping meat separate; cleaning surfaces before and after preparing food. • Use a knife and chopping board to neatly chop ingredients. • Use a spoon to add condiments. • Carefully roll up their wrap. • Serve food in an appealing way.• Clean/wash up after themselves. | • Observe basic food hygiene procedures – washing hands, washing fruit/veg; avoiding cross contamination when preparing raw meat; cleaning surfaces before and after preparing food. • Use appropriate tools to peel, chop, slice, grate and mix ingredients. • Knead and roll out dough. • Cook the product in the oven, ensuring it is fully cooked. • Serve food in an appealing way. • Clean/wash up after themselves | • Observe basic food hygiene procedures – washing hands, washing fruit/veg; avoiding cross contamination when preparing raw meat; cleaning surfaces before and after preparing food. • Use appropriate tools to peel, chop, slice, grate and mix ingredients. • Cook food in the oven and/or on a stove top, ensuring it is fully cooked. • Serve food in an appealing way. • Clean/wash up after themselves |
| Evaluate | • Describe what went well and which aspects of their product they are pleased with. • Describe anything that didn’t work as well and any changes they had to make. • Discuss what the intended user might think about the product. • Suggest how their product could be improved. | • Identify and discuss the strengths of their product.• Identify any areas for development/ improvements that could be made. • Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? • Take part in peer evaluation, giving and receiving feedback from fellow pupils. | • Identify and discuss the strengths of their product.• Identify any areas for development/ improvements that could be made. • Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose? • Take part in peer evaluation, giving and receiving feedback from fellow pupils. |
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|  | Please note these definitions of key words which need to be understood in the specific context of primary Design and Technology, across all year groups. **design** 1. plan to do something with a specific purpose in mind; 2. do a drawing of something before making it **designer** 1. a person who creates a plan for something they want to make; 2. KS2 – also focus on ‘designer’ as a job title/career, e.g. ‘fashion designer’ **technology** using what we know about Science to help us make useful things**product** an outcome piece with a function/that does something - not necessarily a thing which can be sold **brief** the initial instructions that tell us what we need to do in our project **user** the person who we are designing our product for, whose needs/wants must be taken into account |
| Subject Specific Vocabulary | design designer materials tools constructCONSTRUCTION Make Cut Join strong  FOOD ingredients healthy cook taste | design designer materialstoolsbriefproduct evaluate label technology problem-solvingCONSTRUCTION boat buoyant (Science) water-proof (Science) stable Isambard Kingdom BrunelTEXTILES textiles  needle thread pin pattern piece applique William MorrisFOOD  ingredients hygiene balanced nutritious appealing Jamie Oliver | Designtechnology product intended userannotated sketchcomponentdesign criteria computer-aided designCONSTRUCTION net scoring tab accuracy packaging product designer graphic designer shelf-appealbattery circuit switch bulb electrical engineer Alexander Graham Bell Nikola TeslaTEXTILES pattern piece running stitch cross stitch applique embroidery textile designerCath KidstonFOOD hygiene grown reared Local producer seasonal produce dough knead bake Clare Smyth | Designtechnology product intended user design criteria Cross- sectional diagramexploded diagram innovationCONSTRUCTIONframe structure triangulation strengthen reinforce greenhouseagricultural engineering architect Nicolas Grimshaw mechanical system pulley driverfollowerload transport mechanical engineerIsmail Al-JazariEdmund Cartwright George StephensonTEXTILES Pattern pieces back stitch tension seam allowance turn out fastener fashion designer ethical product corporate social responsibilityFOOD hygiene cross contamination local produce seasonality cooking technique deconstructed food Heston Blumenthal |

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| **Overarching D.T Vocabulary** |
| **Skills** | **At Key Stage One:**Template Patternjoin, finish make design brief,design criteria evaluateuserpurposefunctionproductmaterialsdesigneringredients hygiene balanced nutritious  | **At Lower Key Stage Two:**joiningassemble, , reuserecycle evaluatingdesign brief design criteria, reinforceAccuracyhygiene grown reared Local producer seasonal produce pattern piece running stitch cross stitch applique embroidery textile designercomputer-aided designshelf-appeal | **At Upper Key Stage Two:**design criteria,Intended user,evaluate,mock-up, functionality, purpose prototypefashion designer corporate social responsibilityseam allowance, hem fasteningsethical product hygiene cross contamination local produce seasonalitycorporate social responsibilityarchitect mechanical system pulley driverfashion designer |

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| **Autumn Cycle One** |
|  | **Key Stage One** | **Lower Key Stage Two** | **Upper Key Stage Two** |
|  | **Textiles** | **Structures** | **Textiles** |
| **Area Od D. T** | **Textiles**Make a puppet for a puppet show (templates and joining techniques) What sort of puppet shall I make? Who is it for and what is it for? How can I make sure it fits my hand or finger? Which joining technique will work best for my puppet? What media and materials will I use? How will I add the features? What shall I do first? What tools and techniques will I use? What fabrics shall I use? More thoughts… judging, planning, generating new ideas Will the puppet meet the needs of the user and achieve its purpose? | **Construction**Shell structures Xmas gift box (eco-friendly) | **Textiles**Combine different fabric shapes – mountaineering backpack. |
| **Skills** | **Designing** • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. **Making** • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. **Evaluating** • Explore and evaluate a range of existing textile products relevant to the project being undertaken. * Evaluate their ideas throughout and their final products against original design criteria.
 | **Designing** • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. **Making** • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating. **Evaluating** • Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. **Technical knowledge and understanding** • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project. |  **Designing** • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. **Making** • Produce detailed lists of equipment and fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluating** • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. **Technical knowledge and understanding** • A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Fabrics can be strengthened, stiffened and reinforced where appropriate. |
| **Topic Vocabulary** |  **Tier 2**join, finish make design brief,design criteria evaluateuserpurposefunctionFeaturesSuitableQualitydecorate | **Tier 3** mock-up thread pin pattern piece needle Template Pattern Pieces mark outpinsew |  **Tier 2**marking out, tab joiningassemble,evaluatingdesign brief design criteria, reinforceAccuracy reuse | **Tier 3** Scoring eco friendlycorrugating ribbing  prototype Frame structure shell structure three-dimensional (3-D) shape, net, recycle |  **Tier 2**design criteria,user,evaluate,mock-up, functionality, purpose prototypefashion designer  | **Tier 3** turn outseam allowance, hem wrong sidepattern pieces fastenings, ethical product social responsibility |

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| **Autumn Cycle Two** |
|  | **Key Stage One** | **Lower Key Stage Two** | **Upper Key Stage Two** |
|  | **Textiles** | **Textiles** |  |
| **Area Od D. T** |   | Textiles2D Shape to 3D Shape ProductRoman coin pouch |  |
| **Skills** |  | **Designing** • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. **Making** • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. **Evaluating** • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Consider others’ views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. **Technical knowledge and understanding** • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project. |  |
| **Topic Vocabulary** |   |  | **Tier 2** structure,templates, user, purpose, designmodel, evaluate functional,prototype Fabric | **Tier 3**seam allowance compartmentfastening , finishing technique,pattern pieces stitch, seam, names of fabrics zip, button |  |   |