**Intent- Design and Technology**

**Malpas Alport**

At Malpas Alport, **our Design and technology curriculum aims to** encourage children to think creatively and be critical in order to solve problems, both as individuals and as part of a team. We aim to encourage children to be risk-takers, and design and make products that solve real and relevant problems, whilst considering their own and others’ needs, wants and values. We aim to, wherever possible, link work to other subjects such as history, mathematics, science, engineering, computing and art. Through the evaluation of past and present design and technology, children develop a critical understanding of its impact on daily life and the wider world. We aim to enable children to understand how design and technology can impact the world by linking their learning to famous designers and engineers, to raise aspirations and cultural knowledge and understanding of our ever-changing world.

**By the end of EYFS children will be able to create a simple design for a basic product, use temporary methods to join materials together, know how to use scissors safely, and talk about their ideas, discussing what is good and what they would do to make their work better.**

**By the end of KS1 children will be able to design purposeful, functional and appealing products for themselves and others based on design criteria, and be able to develop and communicate their ideas through talking, drawing, templates and mock-ups. They will be able to select from and use a range of tools, equipment and materials to make their product. They will be able to build stable structures and explore simple mechanisms such as levers and sliders. Children will be able to say where food comes from and understand what hygienic means when preparing food. Children will be able to explore and evaluate a range of existing products, and evaluate their own products and ideas against design criteria.**

**By the end of KS2 children will be able to use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose, and be able to develop and communicate their ideas through discussion, annotated sketches, cross-sectional diagrams, exploded diagrams and prototypes. Children will be able to select from a wider range of tools, equipment, materials and components in order to make their product effectively. They will be able to apply their understanding on how to reinforce complex structures, include mechanical systems such as gears and pulleys, and use electrical systems in their products. Children will be able to apply the rules for basic food hygiene and other safe practices. They will be able to investigate and analyse a range of existing products, evaluate their work against their own design criteria, and understand how key events and individuals have helped shape the world in design and technology.**

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| Design  Page 1  DT Skills Progression Grid – Malpas Alport Primary | | | | | | | | | | | | | | | | | |
| FS | | Y1 | | | Y2 | | Y3 | | Y4 | | | Y5 | | | Y6 | | |
| Can I think of some ideas of my own?  Can I use pictures and words to plan it?  Can I design a product for myself following given design criteria? | | Can I think of some ideas of my own?  Can I explain what I want to do?  Can I describe my design by using pictures, diagrams, model mock-ups and words?  Can I design a product for myself following design criteria? | | | Can I think of ideas and plan what to do next?  Can I choose the best tools and materials?  Can I give a reason why these are the best tools or materials?  Can I describe my design by using pictures, diagrams,  model mock-ups, words and ICT?  Can I design a product for myself and others following design criteria? | | Can I generate ideas by considering the purpose of the product?  Can I put together a step-by-step plan which shows the order, equipment and tools I need?  Can I describe my design using an accurately labelled sketch and words?  Can I say how realistic my plan is?  Can I take in to account the ideas of others when designing? | | Can I generate ideas by considering the purpose and the users of the product?  Can I evaluate existing products and identify criteria that could be used in my own design?  Can I produce a plan and explain it to others?  Can I suggest alternative methods of making if first attempts are not successful? | | | Can I come up with a range of ideas after I have brainstormed and collected information?  Can I take a user’s view in to account when designing?  Can I produce a detailed step-by-step plan?  Can I suggest some alternative plans and say what the good points and drawbacks are about each?  Can I use cross sectional planning to show my design?  Can I produce prototypes to show my ideas? | | | Can I use a range of information to inform my design?  Can I use market research to inform my plans?  Can I work within constraints e.g. materials, size etc.?  Can I follow and refine my plan if necessary?  Can I justify my plan to someone else?  Can I consider culture and society in my designs?  Can I use exploded diagrams to show my designs?  Can I use computer aided designs to show my ideas? | | |
| End of Key Stage 1 expectations: | | | | | | | End of Key Stage 2 expectations: | | | | | | | | | | |
| **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. | | | | | | | **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  Page 2  DT Skills Progression Grid - Malpas Alport Primary | | | | | | | | | | | | | | | | | | |
| FS | Y1 | | | Y2 | | | Y3 | | | Y4 | | | | Y5 | | | Y6 | |
| Can I make my design using appropriate techniques with adult support?  Can I use tools safely e.g. scissors hole punch etc?  Can I assemble and join materials using temporary methods?  Can I follow rules for handling food and personal hygiene? | Can I make my design using appropriate techniques?  Can I measure, mark out, cut and shape a range of materials with adult support?  Can I use tools safely?  Can I assemble and join materials using a variety of temporary methods e.g. glue or masking tape?  Can I follow rules for handling food and personal hygiene?  Can I use simple finishing techniques to improve the appearance of my product? | | | Can I begin to select tools and materials and use correct vocab to name and describe them?  Can I measure, cut and score with some accuracy?  Can I use hand tools safely and appropriately?  Can I assemble, join and combine materials using temporary methods?  Can I cut, shape and join fabric using basic sewing techniques?  Can I follow rules for food safety and hygiene?  Can I choose and use an appropriate finishing technique? | | | Can I select tools and techniques for making my design?  Can I measure, mark out, cut, score and assemble components with more accuracy?  Can I work safely and accurately with a range of simple tools?  Can I join and combine materials in temporary and permanent ways?  Can I measure, tape or pin, cut and join fabric?  Can I demonstrate hygienic food preparation and storage?  Can I use finishing techniques to strengthen and improve the appearance of my product? | | | Can I select the appropriate tools and techniques for making my design?  Can I measure, mark out, cut and shape a range of materials?  Can I work safely and accurately with a range of tools?  Can I join and combine materials accurately in temporary and permanent ways?  Can I measure, tape or pin, cut and join fabric with some accuracy?  Can I demonstrate hygienic food preparation and storage?  Can I use finishing techniques to strengthen and improve the appearance of my product? | | | | Can I select the appropriate materials, tools and techniques for making my design?  Can I measure and mark out accurately?  Can I use a range of tools and equipment safely and accurately?  Can I construct products using permanent joining techniques?  Can I pin, sew and stitch materials together with some accuracy?  Can I apply the rules for basic food hygiene and other safe practices e.g. oven hazards?  Can I cut and join with accuracy to ensure a good quality finish to the product? | | | Can I select the appropriate materials, tools, components and techniques for making my design?  Can I assemble components to make working models?  Can I use all chosen tools in a skilled, accurate and safe way?  Can I construct products using permanent joining techniques?  Can I pin, sew and stitch materials together to create a product?  Can I apply the rules for basic food hygiene and other safe practices e.g. oven hazards?  Can I achieve a high-quality product? | |
| End of Key Stage 1 expectations: | | | | | | | End of Key Stage 2 expectations: | | | | | | | | | | | |
| **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. | | | | | | | **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 | | | | | | | | | | | | | | | | | |
| FS | | | Y1 | | | Y2 | | Y3 | | | Y4 | | Y5 | | | Y6 | |
| Can I talk about my products strengths and possible changes I might make?  Can I talk about my ideas and say what I like and dislike about them? | | | Can I talk about existing products and say what it good and not so good about them?  Can I talk about my products strengths and possible changes I might make?  Can I talk about my ideas and say what I like and dislike about them? | | | Can I describe how existing products work?  Can I describe what went well with my product?  Can I evaluate what I would do differently if I did it again and why?  Can I evaluate my work against the design criteria? | | Can I disassemble and evaluate familiar products?  Can I evaluate my product against the original design criteria?  Can I evaluate the appearance of my product and the way it works? | | | Can I disassemble and evaluate products?  Can I evaluate my work during and at the end of the project?  Can I evaluate the appearance of my product and the way it works?  Can I carry out tests to help evaluate my product? | | Can I evaluate my product against the original design specification?  Can I evaluate my product personally and seek evaluation from others?  Can I say if my product is fit for purpose?  Can I carry out tests to help evaluate my product? | | | Can I evaluate against the original criteria and suggest ways my product could be improved?  Can I identify the strengths and areas for development by carrying out appropriate tests?  Can I record my evaluations using drawings wit labels?  Can I evaluate my peers product and suggest ways the product could be improved? | |
| End of Key Stage 1 expectations: | | | | | | | | End of Key Stage 2 expectations: | | | | | | | | | |
| **Evaluate**   * Explore and evaluate a range of existing products. * Evaluate their ideas and products against design criteria. | | | | | | | | **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. | | | | | | | | | |

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| Technical Knowledge | | | | | | |
| F2  DT Skills Progression Grid – Malpas Alport Primary | T1 | T2 | T3 | T4 | T5 | T6  Page 4 |
| **Construction:**  Can I say how to make products strong?  Can I use levers or slides in my work?  **Cooking and nutrition:**  Can I cut food safely?  Can I describe the texture of foods?  Can I wash my hands and make sure surfaces are clean?  Can I think of interesting ways of decorating food I have made?  Can I explain what healthy foods are?  Can I say where some food comes from? | **Use of materials:**  Can I measure materials to use in a model or structure?  Can I join materials in different ways?  Can I use joining, folding or rolling to make it stronger?  Can I use levers or slides in my work?  **Cooking and nutrition:**  Can I describe the properties of the ingredients I am using?  Can I explain what it means to be hygienic?  Can I keep my work space hygienic?  Can I say where food comes from e.g. animals, underground etc. | **Mechanisms:**  Can I join materials together as part of a moving product?  Can I add a specific design to my product?  Can I use axels and wheels in my work?  **Textiles:**  Can I measure textiles?  Can I join textiles together to make something?  Can I cut textiles?  Can I explain why I chose a certain textile?  **Cooking and nutrition:**  Can I start to choose the right ingredients for a product?  Can I keep my work space hygienic and clean?  Can I think of ways to present my work in an interesting way? | **Textiles**:  Can I join textiles of different types in different ways?  Can I choose textiles both for their appearance and qualities?  Can I think what the user would want when choosing textiles?  Can I devise a template?  **Cooking and nutrition:**  Can I choose the right ingredients for a product?  Can I use equipment safely?  Can I grow plants and herbs to use in my product?  Can I present m product in an interesting way?  **Stiff and flexible sheet materials**  Can I work accurately to make cuts and holes?  Can I join materials? | **Stiff and flexible sheet materials:**  Can I measure carefully to avoid making mistakes?  Can I make my product strong?  **Cooking and nutrition:**  Can I describe what I do to be both hygienic and safe?  Can I present my product well?  **Mouldable materials:**  Can I persevere with my product even if the original idea didn’t work?  **Electrical and mechanical components:**  Can I make a product which uses both electrical and mechanical components?  Can I use a simple circuit?  Can I use a number of components?  Can I add things to my circuit? | **Stiff and flexible sheet materials:**  Can I measure carefully to avoid making mistakes?  Can I make my product strong?  **Mouldable materials:**  Can I consider the use of the products when selecting materials?  **Electrical and mechanical components:**  Can I use a switch in my product?  Can I refine my product after testing it?  Can I incorporate hydraulics and pneumatics?  Can I use different kinds of circuits in my product? | **Textiles:**  Can I think of what the user would want when choosing textiles?  Can I make my product attractive and strong?  Can I make a prototype first?  Can I use a range of joining techniques?  Can I think about how my product could be sold?  **Mouldable materials:**  Can I consider the use of the products when selecting materials?  **Electrical and mechanical components:**  Can I use different kinds of circuits in my product?  Can I think of ways in which adding a circuit would improve my product? |
| End of Key Stage 1 expectations: | | | End of Key Stage 2 expectations: | | | |
| **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. | | | **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. | | | |