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| **KS1** | **Year R** | **Year 1** | **Year 2** |
| **Developing, planning and communicating ideas** | Explore different materials freely, 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. | Think of some ideas of their own  Explain what they want to do  Use pictures and words to plan  **Challenge:** Come up with a range of possible solutions to a problem | Think of ideas and plan what to do next  Choose the best tools and materials Give a reason why these are best  Describe their design by using pictures, diagrams, models and words  **Challenge:** Explain why they disregarded some tools/materials |
| **Working with tools, equipment, materials & components to make quality products** | Join different materials and explore different textures. | Explain what they are making  Explain which tools are they using  **Challenge:** Name tools and their uses | Join things (materials/ components) together in different ways  **Challenge:** Use a variety of appropriate joins successfully |
| **Evaluating processes and products** | Describe how something works  Talk about their own work and things that other people have done | Describe how something works  Talk about their own work and things that other people have done  **Challenge:**  Suggest an alternative design/process to improve their work | Explain what went well with their work  If they did it again, explain what would they want to improve  **Challenge:** How did they adapt their design as they worked? |
| **Cooking and nutrition** | Cut food safely  Describe the texture of foods  Wash their hands and make sure that surfaces are clean | Cut food safely  Describe the texture of foods  Wash their hands and make sure that surfaces are clean  Think of interesting ways of decorating food they have made, eg, cakes | Explain what it means to be hygienic  Be hygienic in the kitchen  Know where food comes from |
| **Textiles** | Describe how different textiles feel | Describe how different textiles feel  Make a product from textile by gluing | Measure textile  Join textiles together to make something cut textiles  Explain why they chose a certain textile |
| **Mechanisms** | Cut materials using scissors | Make a product which moves  Cut materials using scissors  Describe the materials using different words  Say why they have chosen moving parts | Join materials together as part of a moving product  Add some kind of design to their product |
| **Use of materials** | Make simple models which expresses their ideas using different materials. | Make a structure/model using different materials  Work tidily  Make their model stronger if it needs to be | Measure materials to use in a model or structure  Join material in different ways  Use joining, folding or rolling to make it stronger |
| **Construction** | Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park. | Talk with others about how they want to construct their product  Select appropriate resources and tools for their building projects  Make simple plans before making objects, e.g. drawings, arranging  pieces of construction before building | Make sensible choices as to which material to use for their  constructions  Develop their own ideas from initial starting points  Incorporate some type of movement into models  Consider how to improve their construction |

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| **LKS2** | | **Year 3** | | **Year 4** |
| **Developing, planning and communicating ideas** | | Show that the design meets a range of requirements  Put together a step-by-step plan which shows the order and also what equipment and tools are needed  Describe their design using an accurately labelled sketch and words  Be realistic with their plan  **Challenge**: Prioritise their design requirements | | How to check if their design is successful  Begin to explain how they can improve their original design  Evaluate their product, thinking of both appearance and the way it works  Consider how they could have made their idea better  **Challenge**: Suggest alternative designs and evaluate them |
| **Working with tools, equipment, materials & components to make quality products** | | Use equipment and tools accurately  **Challenge**: Measure accurately and avoid wasting materials | | Tell if their finished product is going to be good quality  Be aware of the need to produce something that will be liked by others  Show a good level of expertise when using a range of tools and equipment  Work at their product even though their original idea might not have worked  **Challenge**: Evaluate their design from another person’s point of view |
| **Evaluating processes and products** | | Explain what was changed which made the design even better  **Challenge**: Suggest further changes to improve appearance | | How to check if their design is successful  Begin to explain how they can improve their original design  Evaluate their product, thinking of both appearance and the way it works  Consider how they could have made their idea better  **Challenge**: Check and adapt their work as they go along |
| **Cooking and nutrition** | | Choose the right ingredients for a product  Use equipment safely  Make sure that the product looks attractive  Describe how combined ingredients come together  Set out to grow plants such as cress and herbs from seed with the intention of using them for the food product | | Be hygienic and safe  Present their product in an interesting way |
| **Textiles** | | Join textiles of different types in different ways  Choose textiles both for their appearance and also qualities | | Consider what the user would want when choosing textiles  How to make their product strong  Devise a template  Explain how to join things in a different way |
| **Electrical and Mechanical Components** | | Select the most appropriate tools and techniques to use  Make a product which uses both electrical and mechanical components  Use a simple circuit | | Add things to their circuits  Alter their product after checking it  Be confident about trying out new and different ideas |
| **Stiff and flexible sheet materials** | | Do they use the most appropriate materials  Work accurately to make cuts and holes  Join materials | | Measure carefully to ensure there are no mistakes  Make their product strong |
| **Mouldable materials** | | Select the most appropriate materials  Use a range of techniques to shape and mould  Use finishing techniques | | Use a range of advanced techniques to shape and mould  Use finishing techniques, showing an awareness of audience |
| **UKS2** | **Year 5** | | **Year 6** | |
| **Developing, planning and communicating ideas** | Come up with a range of ideas after collecting information  Take a user’s view into account when designing  Produce a detailed step-by-step plan  Suggest some alternative plans and say what the good points and drawbacks are about each  **Challenge**: Draw their plan to scale | | Use a range of information to inform their design  Use market research to inform plans  Work within constraints  Follow and refine their plan if necessary  Justify their plan to someone else  Consider culture and society in their designs  **Challenge**: Present/advertise/promote their idea to ‘sell’ it to a company/buyer | |
| **Working with tools, equipment, materials and components to make quality products** | Explain why their finished product is going to be of good quality  Explain how their product will appeal to the audience  Use a range of tools and equipment expertly  Persevere through different stages of the making process  **Challenge**: Predict the risks involved in using different tools | | Use tools and materials precisely  Change the way they are working if needed  **Challenge**: Train others to use tools and materials precisely | |
| **Evaluating processes and products** | Check that their design is the best it can be  Check whether anything could be improved  Evaluate appearance and function against the original criteria  **Challenge**: Identify the successes and if it is fit for purpose | | Test and evaluate their final product  Ensure their product is fit for purpose  Identify what would improve their product  Evaluate if different resources would have improved their product  Evaluate if more or different information would make it even better  Check their product meet all design criteria  Consider the use of the product when selecting materials  **Challenge**: Research and compare similar products on the market and identify how theirs compare | |
| **Cooking and nutrition** | Describe what they do to be both hygienic and safe  Present their product well | | Explain how their product should be stored with reasons  Set out to grow their own products with a view to making a salad, taking account of time required to grow different foods | |
| **Textiles** | Think what the user would want when choosing textiles  Make their product attractive and strong  Make up a prototype first  Use a range of joining techniques | | Consider about how their product could be sold  What would improve their product even more | |
| **Electrical and Mechanical Components** | Incorporate a switch into their product  Refine their product after testing it  Incorporate hydraulics and pneumatics | | Use different kinds of circuit in their product  Identify ways in which adding a circuit would improve their product | |
| **Stiff and flexible sheet materials** | Accurate measurements to ensure that everything is precise  Ensure their product is strong and fit for purpose | | Justify why they selected specific materials  Ensure their work is precise and accurate  Hide joints so as to improve the look of their product | |
| **Mouldable materials** | Be motivated to refine and further improve their product using mouldable materials | | Refine and further improve their product using mouldable materials  Justify why the chosen material was the best for the task  Justify design in relation to the audience | |