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| YEAR 3 :  **Design** | | |
| National Curriculum: | Knowledge: | Key Questions: |
| ***Structures*** –   * Consider key features of a structure to appeal to a specific person/purpose * Research structures to support designing their own * Draw and label designs using 2D shapes.   ***Mechanics/Mechanical Systems –***   * Create a product that uses pneumatic systems * Develop a design criteria from a design brief * Model and communicate ideas through discussion, annotated sketches, cross sectional and exploded diagrams * Create prototypes   ***Cooking and Nutrition –***   * Create healthy and nutritious recipes * Use seasonal produce to create a savoury dish * Consider the texture, smell, taste and appearance.   ***Textiles –***   * Design a template using existing designs as support   ***Electrical Systems and Digital World –***   * Design a product that functions using static electricity * Begin to explore CAD | * Understand how to create a more detailed design criteria (things that need to be met to be successful) by using a design brief * How to create more detailed designs * How this can support them during the making process * How pneumatic systems work * How static electricity is produced * How computer software can support our designs * How using existing products can help us to create templates for our own | * Who/What is your design being created for? * What will the product be able to do? How? * What structures do we have in our everyday world that is similar to yours? * How does a pneumatic system work? * What are you going to use pneumatics for? * How can you make your design more detailed? * What will the product look like? * How can you make the example more detailed? * Which foods do you think would work well together? Why? * Which foods are the healthiest? * What do you want it to look like when you have completed it? * How will a template help you? * How can we use a computer to help us with the design? * What is static electricity? * How can we produce it? * Could someone else use your design to create their own product? |
| **Previous learning** **(Year 2)**   * Communicating about our designs in different ways * Learning about different types of structures and where they are found * Working in groups to create products * Joining fabrics * Understanding the 5 food groups and the importance of good nutrition | **Next learning** (**Year 4)**   * Creating objects that are aesthetically pleasing * Building frames to support the weight of structures * Personalising a design * Testing the success of a design * Taste testing * Writing designs for textiles * CAD | |
| Key Vocab: | | |
| Computer Aided Design, exploded diagrams, prototypes, pneumatic systems, cross sectional drawing, design templates, design briefs, static electricity | | |
| Exploring and Developing Ideas | | |
| * Researching products that are already available, both man -made and natural in the real world * Using a range of design options to share ideas * Creating prototypes to test functionality of future products * Using existing products to improve our own designs | | |

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| YEAR 3:  **Make** | | |
| National Curriculum: | Knowledge: | Key Questions: |
| ***Structures*** –   * Select and use a wider range of tools and materials * Consider how aesthetically pleasing the structure will be * Make the designs more individual * Use recycled materials   ***Mechanics/Mechanical Systems –***   * Create pneumatic systems * Pick the materials due to their functional and aesthetic characteristics * Manipulate materials to create different affects   ***Cooking and Nutrition –***   * Select a range of ingredients * Understand the principles of a healthy and varied diet * Know how to prepare a workspace to cook safely in * Follow instructions for a recipe   ***Textiles –***   * Select a range of materials * Follow a design criteria * Select and cut fabrics * Complete a design   ***Electrical Systems and Digital World***   * Select a range of components * Use materials and equipment safely | * Understand there are a range of programmes to support designing and making * Be able to make choices on the tools and materials used based on the desired outcome * Understand how a pneumatic system can be created * Understand why it can be important to consider what a finished product will look like * Understand how materials can be changed to create different affects * Why it is important to have a safe working area when preparing and cooking food | * What is CAD? * How have you used computer programmes to help you? * Who is the product for? * What will it be used for? * How can you make the work space safe and clean? * Which ingredients are you using? Why? * How can you make the design more detailed and easy to follow? * What does pneumatic mean? * Why have you chosen those materials? * Did the materials/components /ingredients work as you wanted? |
| **Previous learning** **(Year 2)**   * Cut food safely * Explore linkages * Following a design brief * Creating joins | **Next learning** (**Year 4)**   * Creating a range of different shaped structures * Selecting and adapting materials to build a strong structure * Measuring, marking and cutting * Creating an object that requires a circuit and a switch * Considering hygiene rules when following a baking recipe | |
| Key Vocab: | | |
| Healthy, varied, aesthetics, recycled, functional, manipulate, design criteria, audience, purpose. | | |
| Exploring and Developing Ideas | | |
| * Explore how you can use programs on a computer to create more detailed designs * Create designs that can be followed by others to produce the same outcome * Experiment with different ways of presenting the designs and sharing these ideas with peers | | |

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| YEAR 3:  **Evaluate** | | | | | |
| National Curriculum: | Knowledge: | | | Key Questions: | |
| ***Structures*** –   * Evaluate own and others work * Investigate and research existing products   ***Mechanics/Mechanical Systems –***   * Consider others views when improving work * Use the views of others to improve work * Begin to understand the purpose of exploding diagrams   ***Cooking and Nutrition –***   * Develop a design criteria to help test and review dishes * Consider the benefit of seasonal fruits and vegetables and the impact on the environment   ***Textiles –***   * Evaluate the end product, thinking about way to create a similar product   ***Electrical Systems –***   * Begin to give constructive feedback on the work of themselves and others * Test the success of products   ***Digital World -***   * Analyse and evaluate existing products | | * To be able to evaluate own and others work, productively. * Discuss ideas and adaptations with others * Experiment with exploding diagrams and different ways to present ideas. * Being able to analyse products that have already been produced, looking for similarities and differences * Understand where food comes from and how seasons/climate affect what is available. | | | * Where does that food come from? * How does it get here? * What do we use it for? * What was the best part of *x*’s product? * How could you improve yours? * How does yours compare to that of a pre existing product? * What is similar/different from your end product and *x*’s? |
| **Previous learning** **(Year 2)**   * Explore features of structures * Comparing the stability of different shaped structures * Describing taste, texture and smell of fruits and vegetables * Evaluating designs against their own design criteria * Evaluating different designs * Comparing the quality of work produced. | **Next learning** (**Year 4)**   * Document and evaluate products * Suggest modifications and improvements * Test and evaluate products * Compare structures made with those others have created * Describe characteristics of a design * Evaluate recipes * Consider budgets involved with creating things | | | | |
| Key Vocab: | | | | | |
| Analyse, compare, evaluate, existing products, review seasonal, environment, climate, exploding diagrams | | | | | |
| Exploring and Developing Ideas | | | Evaluating and Developing Work | | |
| * Analyse their own and others structures to help with improvements * Give and receive constructive feedback to benefit future projects * Test the success of their (and others) products | | | * Compare the product to the design brief and discuss changes that could be made to help with improvements. * Test the success of products and discuss ways to improve | | |

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| YEAR 3:  **Technical Knowledge** | | |
| National Curriculum: | Knowledge: | Key Questions: |
| ***Structures*** –   * Identify features of a structure * Identify suitable materials and explain why they are appropriate * Apply understanding to strengthen structures   ***Mechanics/Mechanical Systems –***   * Understand that mechanisms are part of a system * Understand the different systems in simple mechanics   ***Cooking and Nutrition –***   * Discuss how climate affects food growth * Understand where food comes from and the journey it takes, as well as the impacts of this * Recognise the nutritional benefits of different fruits and vegetables   ***Textiles –***   * Begin to use needles ad thread independently * Discuss the effect layering has on the appearance of fabrics   ***Electrical Systems –***   * Understand how electricity systems can work   ***Digital World –***   * Discuss the developments and advantages of digital support | * To understand how climate affects the growth of food * To understand how to work safely with cooking equipment * To recognise that mechanics form systems that work together to create movement * To identify features of structures * Begin to identify products that are likely to be more stable * Begin to understand the importance of aesthetics for some products produced * Be able to explain the affects of layering fabrics and the benefits to aesthetic appreciation | * How does the food get to our kitchen? * What could we make with these ingredients? * How would we prepare the working area? * How was this structure built? * Which materials did you use? * How could you make it stronger? * What makes this mechanism move? * How have you made your product individual? |
| **Previous learning** **(Year 2)**   * Using fabric glue to join fabric * Investigate what makes a structure more sturdy * Recognising the input and output of mechanics * Using levers and pivots | **Next learning** (**Year 4)**   * Begin to explore different fastening options * Using prior knowledge * Recognising products evolve and change over time * Testing and evaluating products | |
| Key Vocab: | | |
| Features, identify, materials, appropriate, strengthen, mechanics, system, nutritional, layering, advantages, appearance, digital, aesthetic | | |
| Exploring and Developing Ideas | | |
| * Share ideas of structural features, to develop understanding * Test what features create the most stable structures * Challenge safe ad hygienic work spaces | | |