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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?
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| **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
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| 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?
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| **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?
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| **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
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