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|  | **Structures: Constructing a Castle (Y3)** | **Mechanical Systems:  Pneumatic Toys (Y3)** |
| **Design** | * Designing a castle with key features to appeal to a speciﬁc person/purpose.
* Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours.
* Designing and/or decorating a castle tower on CAD software.
 | * Designing a toy which uses a pneumatic system.
* Developing design criteria from a design brief.
* Generating ideas using thumbnail sketches and exploded diagrams.
* Learning that different types of drawings are used in design to explain ideas clearly.
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| **Make** | * Constructing a range of 3D geometric shapes using nets .
* Creating special features for individual designs.
* Making facades from a range of recycled materials.
 | * Creating a pneumatic system to create a desired motion.
* Building secure housing for a pneumatic system.
* Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy.
* Selecting materials due to their functional and aesthetic characteristics.
* Manipulating materials to create different effects by cutting, creasing, folding and weaving.
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| **Evaluate** | * Evaluating own work and the work of others based on the aesthetic of the ﬁnished product and in comparison to the original design.
* Suggesting points for modiﬁcation of the individual designs.
 | * Using the views of others to improve designs.
* Testing and modifying the outcome, suggesting improvements.
* Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.
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| **Technical** | * To understand that wide and ﬂat based objects are more stable.
* To understand the importance of strength and stiffness in structures.
 | * To understand how pneumatic systems work.
* To understand that pneumatic systems can be used as part of a mechanism.
* To know that pneumatic systems operate by drawing in, releasing and compressing air.
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| **Additional** | * To know the following features of a castle: ﬂags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose.
* To know that a façade is the front of a structure.
* To understand that a castle needed to be strong and stable to withstand enemy attack.
* To know that a paper net is a ﬂat 2D shape that can become a 3D shape once assembled.
* To know that a design speciﬁcation is a list of success criteria for a product.
 | * To understand how sketches, drawings and diagrams can be used to communicate design ideas.
* To know that exploded-diagrams are used to show how different parts of a product ﬁt together.
* To know that thumbnail sketches are small drawings to get ideas down on paper quickly.
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|  | **Electrical Systems:  Electric Poster (Y3)** | **Food:  Eating Seasonally (Y3)** |
| **Design** | * Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas.
* Generate a ﬁnal design for the electric poster with consideration to the client’s needs and design criteria.
* Design an electric poster that ﬁts the requirements of a given brief.
* Plan the positioning of the bulb (circuit component) and its purpose.
 | * Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.
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| **Make** | * Create a ﬁnal design for the electric poster.
* Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of the circuit on the rear.
* Measure and mark materials out using a template or ruler.
* Fit an electrical component (bulb).
* Learn ways to give the ﬁnal product a higher quality ﬁnish (e.g. framing to conceal a roughly cut edge).
 | * Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination.
* Following the instructions within a recipe.
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| **Evaluate** | * Learning to give and accept constructive criticism on own work and the work of others.
* Testing the success of initial ideas against the design criteria and justifying opinions.
* Revisiting the requirements of the client to review developing design ideas and check that they fulﬁl their needs.
 | * Establishing and using design criteria to help test and review dishes.
* Describing the beneﬁts of seasonal fruits and vegetables and the impact on the environment.
* Suggesting points for improvement when making a seasonal tart.
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| **Technical** | * To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit.
* To understand common features of an electric product (switch, battery or plug, dials, buttons etc.).
* To list examples of common electric products (kettle, remote control etc.).
* To understand that an electric product uses an electrical system to work (function).
* To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.
 | * To know that not all fruits and vegetables can be grown in the UK.
* To know that climate affects food growth.
* To know that vegetables and fruit grow in certain seasons.
* To know that cooking instructions are known as a ‘recipe’.
* To know that imported food is food which has been brought into the country.
* To know that exported food is food which has been sent to another country..
* To understand that imported foods travel from far away and this can negatively impact the environment.
* To know that each fruit and vegetable gives us nutritional beneﬁts because they contain vitamins, minerals and ﬁbre.
* To understand that vitamins, minerals and ﬁbre are important for energy, growth and maintaining health.
* To know safety rules for using, storing and cleaning a knife safely.
* To know that similar coloured fruits and vegetables often have similar nutritional beneﬁts.
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| **Additional** | * To understand the importance and purpose of information design.
* To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached).
 | * Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.
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|  | **Textiles:  Cross Stitch & Applique (Y3)** | **Digital World: Electronic Charm (Y3)** |
| **Design** | * Designing and making a template from an existing cushion and applying individual design criteria.
 | * Problem solving by suggesting potential features on a Micro: bit and justifying my ideas.
* Developing design ideas for a technology pouch.
* Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.
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| **Make** | * Following design criteria to create a cushion or Egyptian collar.
* Selecting and cutting fabrics with ease using fabric scissors.
* Threading needles with greater independence.
* Tying knots with greater independence.
* Sewing cross stitch to join fabric.
* Decorating fabric using appliqué.
* Completing design ideas with stufﬁng and sewing the edges (Cushions) ***or***
* embellishing the collars based on design ideas (Egyptian collars).
 | * Using a template when cutting and assembling the pouch.
* Following a list of design requirements.
* Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch.
* Applying functional features such as using foam to create soft buttons.
* Writing a program to control (button press) and/or monitor (sense light) that will initiate a ﬂashing LED algorithm.
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| **Evaluate** | * Evaluating an end product and thinking of other ways in which to create similar items.
 | * Analysing and evaluating an existing product.
* Identifying the key features of a pouch.
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| **Technical** | * To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.
* To know that when two edges of fabric have been joined together it is called a seam.
* To know that it is important to leave space on the fabric for the seam.
* To understand that some products are turned inside out after sewing so the stitching is hidden.
 | * To understand that, in programming, a ‘loop’ is code that repeats something again and again until stopped.
* To know that a Micro:bit is a pocket-sized, codeable computer.
 |
| **Additional** |  | * To know what the ‘Digital Revolution’ is and features of some of the products that have evolved as a result.
* To know that in Design and technology the term ‘smart’ means a programmed product.
* To know the difference between analogue and digital technologies.
* To understand what is meant by ‘point of sale display.’
* To know that CAD stands for ‘Computer-aided design’.
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