



Year 3 – Design and Technology Overview



Topic	Cooking and Nutrition - Eating Seasonally (Autumn)	Structures – Constructing a Anglo Saxon castle - (Spring)	Mechanical Systems - Pneumatic toys (Summer)
Linked Books			
Designer/Architect/Engineer	<p>Nadia Hussain</p> 	<p>Balmoral Castle (designed by Prince Albert and architect William Smith)</p> 	<p>James Dyson</p> 
Substantive knowledge			
Technical	<ul style="list-style-type: none"> • 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'. 	<ul style="list-style-type: none"> • To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures. 	<ul style="list-style-type: none"> • 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.
Additional	<ul style="list-style-type: none"> • To know that imported food is food which has been brought into the country. 	<ul style="list-style-type: none"> • To know the following features of a castle: flags, towers, battlements, turrets, curtain 	<ul style="list-style-type: none"> • To understand how sketches, drawings and diagrams can be used to communicate design ideas.

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	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> • 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.
Skills			
Design	<ul style="list-style-type: none"> • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
Make	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials. 	<ul style="list-style-type: none"> • 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

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			<p>make a functional and appealing pneumatic toy.</p> <ul style="list-style-type: none"> • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create different effects by cutting, creasing, folding and weaving.
Evaluate	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
Vocabulary	Climate, dry climate, exported, imported, Mediterranean climate, nationality, nutrients, Polar climate, recipe, seasonal food, seasons. temperate climate, tropical climate.	2D shapes, 3D shapes, Castle, Design criteria, Evaluate, Façade, Feature, Flag, Net, Recyclable, Scoring, Stable, Strong, Structure, Tab, Weak	Exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch.