



DT at Upton – an Overview



At Upton DT is taught through our Topic learning, with a central theme as the connector for purposeful learning . We intend to follow the National Curriculum for DT, making adaptations to suit the specific learning of our pupils. We want our learning to link as much as possible, not just inside a singular subject but to a wider topic. Within DT is real potential for cultural capital, "the essential knowledge that children need to be educated citizens" and knowledge of the world

	Year 3	
Topic	Key Knowledge	Vocab
Knowing Me Knowing You	<p>Create a class 'levers and linkages book' about themselves</p> <p>Design</p> <p>Know how to evaluate the designs of others to understand how to develop their own idea</p> <ul style="list-style-type: none">• know how to generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.• know how to use annotated sketches to develop, model and communicate ideas. <p>Know how basic levers work</p> <p>Make</p> <ul style="list-style-type: none">• know how to order the main stages of making.• know how to select and use appropriate tools with some accuracy to cut, shape and join paper and card. <p>Evaluate.</p> <p>Know how to self- evaluate their own products and ideas against criteria and user needs</p> <p>Technical knowledge and understanding</p> <p>Know how levers work</p>	<p>Design develop Annotated sketch Lever Mechanism</p>
(Rock Bottom)	<p>Construct Stone age shelters and tools</p> <p>Know how to assemble, join and combine materials and components to construct shelters.</p> <p>To design , construct and evaluate a stone age shelter.</p> <p>To create stone age tools using natural resources.</p>	<p>Natural resources Junk-modelling Practical tasks Evaluate Research</p>

	Design Know how to use research to examine the design of stone age tools Know how to assemble the necessary components before beginning Make: Know how to perform practical tasks	Shelter functional
(Egypt)	Create a Shadoof Design: Know how basic levers work Know the purpose of a shadoof Know how to use research of existing products to develop design criteria for functional product Know how to use annotated diagrams to design Make: Know how to select relevant equipment Know how to join using string and balance Technical knowledge: know how to strengthen and stabilise legs	Levers Purpose Shadoof product equipment fit for purpose improve annotated diagrams
(May the Force Be With You)	Create Magnet Maze Design use research of existing products to develop the design criteria of functional and appealing product aimed at particular demographic begin to know what the words 'functional' and 'aesthetic' mean Know how to generate, develop and communicate ideas through discussions. Know how to use annotated sketches to design Know what a prototype is Know how to analyse a prototype for ideas Make: Begin to know how to use glue guns effectively for joining know how to select and use appropriate tools with some accuracy to cut, shape and join paper and card. Evaluate: Know how to evaluate against own design criteria and the views of others	Generate ideas Glue guns Joining Design criteria Product Functional Appealing Prototype
It's a Small World	DT/ART: 3D modelling . Make a 3D map of the UK: Whole class project A Huge Map of the UK cut into differing regions and given to each table group who add the key topographical features and landmarks of the areas using 3D materials.	Purpose Shaping tools Practical tasks Range of materials Carving

	<p>Design: use research of existing products to develop the design criteria of innovative and appealing products aimed at particular groups. Use discussion and then annotated sketches to determine which features should be included and how they are to be created.</p> <p>Make: select from a wide range of tools for the purpose. These will include glue guns, scissors, and shaping tools to perform practical tasks</p> <p>Select from a range of materials. Use materials, nets and carving to create landmarks and topographical features</p> <p>Evaluate: Each group to explain what they have added and why – consider the views of others in the class for any improvements to be made; map to be put back together</p>	<p>Modelling 3D materials</p>
(Healthy Humans)	<p>Prepare a Healthy Salad</p> <p>Know that a healthy diet is made up from a variety and balance of different foods and drinks Know that to be active and healthy, food is needed to provide energy for the body Know that everyone should eat at least five portions of fruit and vegetables every day Know how and where we would get the ingredients we need from Prepare simple dishes safely and hygienically, without using a heat source. Prepare Healthy Salads</p>	<p>Healthy diet Portions Hygienically Salad variety</p>
	Year 4	
Life on Earth	<p>Eco-Friendly</p> <p>Design: Consider the views of others, including intended users, to improve their work Investigate - who designed and made the products, where products were designed and made, when products were designed and made and whether products can be recycled or reused Use annotated sketches to design own eco-house, explaining the key aspects</p> <p>Make: Use a range of construction material and joining techniques to create a model eco-house</p> <p>Evaluate: From a design perspective, what could be improved to make the house more eco-friendly?</p>	<p>Intended user Recycle Reuse Investigate Ecohouse Sustainable Environmentally friendly</p>
Our Planet	<p>Make a Seismograph</p> <p>Design: Use research to understand how a seismograph works to develop design criteria of a functional product fit for use. Determine a success criteria for a seismograph Introduce pupils to exploded diagrams to aid in the construction of the product</p> <p>Make: Use a range of materials linked to their functional properties. Use a range of tools to construct</p> <p>Evaluate: Evaluate vs the success criteria</p>	<p>Seismograph Design criteria Exploded diagram Functional purpose Autonomously Success criteria construct</p>

	Suggest improvements – how could the recording paper move autonomously, for example	
Light it Up	Quiz Board Select materials and components suitable for the task Order the main stages of making Follow procedures for safety Identify the strengths and weaknesses of their ideas and products Understand how simple electrical circuits and components can be used to create functional products Application to create quiz board	Circuits Components Diagram Bulb Battery Series parallel
Greece	Modelling of our teeth. Art: Build up sculpting skills using shaping tools and plasticine DT: Design: examine the shape and structure of teeth (science). Share and clarify ideas through discussion Use annotated sketches to design the model Make: Use tools for shaping and shape materials with accuracy. Shape and join components with some accuracy Apply a range of finishing techniques Evaluate: is our model technically correct – height and shape of the teeth. What could have been improved	Shape Structure Components Finishing Accuracy
Romans	Make a Roman Catapult What is a catapult – how has it been used across History? Design: use research and develop design criteria so the design is functional and fit for its specific purpose. Use annotated sketches Make: Use tools and equipment for cutting and joining. Introduce pupils to hacksaws and vices Build on their work with glueguns. Improve technical knowledge of how to reinforce with corner triangles Evaluate: Against their own criteria; fit for purpose and the views of others Understand how catapults have been involved in some of the key events in history Explore the maths link to angle of launch and test accuracy What is an aqueduct – how does it work, what was it used for and why? Design: use research and develop design criteria so the design is functional and fit for its specific purpose.	Hacksaw Vice Reinforce Aqueduct Catapult Corner triangles Fit for purpose

	Build a simple prototype of a working aqueduct	
Beautiful Broadstairs	Cooking and Nutrition Linking to the Broadstairs Food Festival Investigate food preparation and presentation as an expression of human creativity Each class determine their own theme and focus food type Research their ingredients – where do they come from, how are they processed etc Prepare – and cook where necessary - a range of dishes reflecting the chosen theme.	Processed Ingredients Creativity expression
	Year 5	
	Irreversible Changes Baking Bread Know that recipes can be adapted to change the appearance, taste, texture and aroma Know that different foods contain different substances - nutrients, water and fibre - that are needed for health How to prepare and cook safely and hygienically. How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking Apply this to make differing types of bread	Appearance Taste Texture Aroma Kneading Peeling Nutrients Hygienically
China	Create Chinese Spring Rolls Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Seasonal food -Spring rolls -spring vegetables; used to celebrate Chinese New Year	Seasonality Grown Reared Processed Savoury dishes
Invaders and Settlers	Developing Prototypes Pulley system Examine different mechanisms, including gears, levers and pulleys, and how they work. Work as groups to develop prototype models for pulley systems and the	Gears Levers Pulley system Prototype

	<p>Design: Investigate how the Vikings were able to build huge longboats without motor powered machinery to move huge pieces of timber. Look at their use of pulley systems to achieve this. Plan to make their own pulley system,</p> <p>Make: Starting with a prototype and then developing into the final construction using hacksaw and vices more independently, using glue guns or triangle corners for joining</p> <p>Evaluate: Is the product functional? Can it move heavy items with less force required? Science link by measuring force required using Newton Meter</p>	
The Maya	<p>Make a Mayan Worry Doll Use a wide range of materials – including textiles and Know that a 3D textiles product can be made from a combination of fabric shapes. Build the skills needed – pupils to learn the differing stitches required Design: Research the criteria for design so that the product is fit for purpose. Use annotated sketches to create a model. Produce a basic prototype first using pins or similar joining Use pattern pieces within design to hold the shape of the material needed Make: use tools for cutting, shaping and joining through sewing and stitching Evaluate: How durable is the product. How can we reinforce? CAD Use Computer Aided design to design a pyramid. Pupils to use TinkerCad to design a Mayan temple</p>	<p>Computer Aided Design Pattern pieces Fit for purpose stitches Fabric textiles</p>
To Infinity and Beyond	<p>Make a Moon-Rover straight-line vehicle, using a motor-powered engine Understand and use electrical systems in products Design: Use research to inform the design. There will be a need to travel across rocky terrain. Use exploded diagrams to model and communicate ideas Make: Use a range of tool for cutting, joining and finishing accurately Choose materials and their components based on their functional qualities Evaluate: Make improvements through considering how effective their product is after testing and take into account the views of others Technical knowledge: understand and use a motor and a series circuit with a switch in their product. Use their understanding of how to stiffen and support structure for the mounting of the motor</p>	<p>Mounting Exploded diagram Series circuit Motor terrain</p>
Walk on the Wild side	<p>Understand and use mechanical system in products. Make a Pneumatic Rainforest Creature Design: Understand the processes behind pneumatic systems and where they are used in the ‘real-world’ Use cross-sectional diagrams to explain how pneumatics works. Generate ideas through discussion. Make: using functional and aesthetic materials to match purpose Evaluate: does the pneumatic process work? What could be improved? Make a moving creature using levers and linkages</p>	<p>Levers Linkages Pneumatics Functional and aesthetic Cross-sectional diagrams</p>

	<p>Design -ensure pupils have the opportunity to experiment with differing levers and linkages and understand how these operate</p> <p>Pupils used annotated diagrams to design and explain how their design will work</p> <p>Make: using functional and aesthetic materials to match purpose</p> <p>Evaluate - use the views of others to improve the aesthetic design</p>	
	Year 6	
Fun at the Fair	<p>Computer Control of Fairground Rides</p> <p>Use a wider range of materials and components , (mechanical components and electrical components)</p> <p>Design: Compare their ideas and products to their original design specification</p> <p>Make: Understand how gears create movement</p> <p>Evaluate: How would we make this more effective?</p> <p>Technical knowledge: Understand how to program a computer to monitor changes in the environment / control their products</p>	<p>Computer control</p> <p>Computer program</p>
Changing World	<p>International Food Day</p> <p>Food from around the world. Pupils investigate differing cultures and the food that is traditionally from these areas of the world. Pupils to learn how to prepare similar dishes</p> <p>How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of heat source and how to use a range of techniques</p>	
We'll Meet Again (T3&4)	<p>Anderson Shelters! Design a shelter to withstand force and to develop understanding of WWII shelters</p> <p>Design: Use research to develop design criteria and model using cross-sectional diagrams</p> <p>Develop simple prototype to ensure correct use of materials.</p> <p>Make: Use a wide range of materials to complete the product</p> <p>Use a wide-range of tools to cut, shape and join</p> <p>Evaluate: Does the product resemble WWII shelter? How much force can it withstand? How could it be improved – link to current nuclear shelters</p> <p>Technical knowledge: how could we improve the mechanism to make it stronger?</p>	<p>Cross-sectional diagram</p> <p>Prototype</p> <p>Dome shelter</p>
Born this Way	<p>How to stay safe from County Lines</p> <p>Understand and use mechanical systems in products - Cam mechanism</p> <p>Create an informative mechanism</p>	<p>Cam mechanisms</p> <p>Drop cam</p> <p>Crankshaft</p> <p>Follower</p>

	<p>Design: Research into effective signage and information models to inform the design of innovative products aimed at a specific group</p> <p>Use exploded diagrams to model the design</p> <p>Make: Use a wide range of tools and components, considering both functional and aesthetic</p> <p>Evaluate: How effective is the mechanism? How smoothly does it work?</p> <p>Technical knowledge – how could we improve the mechanism to make it smoother. How effective is it for its purpose – what would be more effective?</p>	<p>Pear cam</p>
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