

Design and Technology – Y6
KAPOW

<p align="center"><u>Honesty</u></p> <p>Learning to communicate with confidence Asking for help when necessary Giving criticism kindly</p>	<p align="center"><u>Love</u></p> <p>Offering to help Giving praise to self and others</p>	<p align="center"><u>Forgiveness</u></p> <p>Being able to accept kind criticism Learn to be patient when sharing</p>	<p align="center"><u>Respect</u></p> <p>Appreciating the efforts of others Looking after equipment, materials, the classroom environment and each other's work</p>	<p align="center"><u>Cultural Capital Opportunities</u></p> <p>Investigating products in the school environment, the locality and at home Learning about the impact of nutrition on health Learn about significant designers who have shaped the locality, the UK and the world- Learning where food comes from Learning to use unfamiliar equipment and materials</p>		
<p><u>A Love Of Language</u></p> <p><u>Reading:</u> -reading technical and other key vocabulary -reading instructions -reading age appropriate information about designers and products -reading peers' writing</p> <p><u>Listening:</u> -listening to instructions -listening to video clips -listening to partners and team members</p> <p><u>Speaking:</u> -communicating with partners and team members -asking questions -using technical and other key vocabulary -describing and explaining ideas, decisions and opinions</p> <p><u>Writing:</u> -labelling drawings -writing technical and other key vocabulary -writing instructions -writing product evaluations</p>	<p align="center"><u>Aspirations</u></p> <p>Identify the ways a product will meet the design criteria</p> <p>Identify the positive effect the product will have on the intended user</p> <p>Self-evaluate their use of equipment and skills and set their own targets for improvement</p> <p>Aspire to become a designer, inventor, mechanical engineer, architect, chef</p> <p>Aspire to use own creativity and practical skills to improve people's ways of life</p>	<p align="center"><u>Bringing Learning To Life</u></p> <p>Evaluating a variety of existing products</p> <p>Visits to the locality to investigate products</p> <p>Practical use of a range of techniques and materials</p> <p>Making products that function and are appealing</p>	<p align="center"><u>Emotional Well-Being</u></p> <p>Learning to be supportive and cooperative</p> <p>Being proud of what they have accomplished</p>	<p align="center"><u>Resilience</u></p> <p>Being willing to take risks</p> <p>Persevering with new techniques and equipment</p> <p>Know that practise brings improvement</p>	<p align="center"><u>Valuing Our Diversity</u></p> <p>Learning about foods from around the world</p> <p>Finding out about and valuing people's preferences</p>	<p align="center"><u>Respect and Responsibility</u></p> <p>Listening to safety instructions and using equipment with care</p> <p>Looking after equipment, materials, the classroom / local environment and each other's work</p> <p>Giving praise (to self as well as others)</p> <p>Giving criticism kindly</p> <p>Accept kind criticism</p> <p>Asking for help when necessary</p> <p>Offer to help</p> <p>Learn to be patient when sharing</p>

What will they learn?		In what order?			End points	
Key Concepts and Key Skills		Autumn	Spring	Summer		
<p>Playgrounds: Design</p> <ul style="list-style-type: none"> • Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs. <p>Make</p> <ul style="list-style-type: none"> • Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures. <p>Evaluate</p> <ul style="list-style-type: none"> • Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure <p>Technical Knowledge:</p> <ul style="list-style-type: none"> • To know that structures can be strengthened by manipulating materials and shapes. 		<p>Digital World: Navigating the world Navigating the world (5 lessons) Lesson 5 is optional* Program a navigation tool to produce a multifunctional device for trekkers. Combine 3D virtual objects to form a complete product concept in 3D computer-aided design modelling software.</p>	<p>Structures</p> <p>Playgrounds:</p> <p>Playgrounds (4 lessons) Design and create a model for a new playground featuring five apparatus, made from three different structures. Using a footprint as the base, practise visualising objects in plan view and get creative including natural</p>	<p>Electrical systems :Steady hand game.</p> <p>Steady hand game (4 lessons) Design and create a steady hand game, use nets to create the bases and apply knowledge of electrical circuits to build an operational circuit with a buzzer that completes the circuit when the handle</p>	<p>Autumn</p> <p>Digital world : Navigating the world</p> <ul style="list-style-type: none"> • Incorporate key information from a client’s design request such as ‘multifunctional’ and ‘compact’ in their design brief. • Write a program that displays an arrow to indicate cardinal compass directions with an ‘On start’ loading screen. • Identify errors (bugs) in the code and suggest ways to fix (debug) them. • Self and peer evaluate a product concept against a list of design criteria with basic statements. • Combine more than one object to develop a finished 3D CAD model in Tinkercad. <p>Come dine with me:</p>	

<ul style="list-style-type: none"> • To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea. <p>Automata toys:</p> <p>Design:</p> <ul style="list-style-type: none"> • Noticing wider-reaching problems or needs in the community. • Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. • Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design <p>Make:</p> <ul style="list-style-type: none"> • Producing lists of equipment, materials and tools that they need for a task. • Selecting materials, components or ingredients based on research or user needs. • Explaining their choices, referring to their research. • Considering which equipment will work well together. • Choosing from the known range of equipment available to them with little guidance. • Assessing risks associated with different tools and equipment. • Understanding and explaining the importance of each safety rule. • Consistently apply safety instructions. • Cutting jelutong or other harder wood with a coping saw or a tenon saw in small groups. • Cutting in a back-and-forth sawing motion where appropriate . • In supervised groups, using hot glue guns safely. • Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly. <p>Evaluate</p> <ul style="list-style-type: none"> • Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. • Providing feedback that is helpful, specific and encouraging. • Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had. <p>Technical knowledge</p> <p>To know that the mechanism in an automata uses a system of cams, axles and followers.</p> <ul style="list-style-type: none"> • To know that different shaped cams produce different outputs. 	<p>Cooking and Nutrition:</p> <p>Come Dine with Me:</p> <p>Come dine with me (6 lessons)</p> <p>Research and prepare a three-course meal and taste-test and score their food. Research the journey of their main ingredient from 'farm to fork' and write a favourite recipe.</p>	<p>features.</p> <p>Textiles:</p> <p>Waistcoats (4 lessons)</p> <p>Select fabrics, use templates, pin, decorate and stitch materials together to create a waistcoat for a person or purpose of their choosing. Create or use a pattern template to fit a desired person or item (e.g. teddy bear).</p>	<p>makes contact with the wire.</p> <p>Mechanical systems: Automata toys</p> <p>Automata toys (4 lessons)</p> <p>Use woodworking skills, pupils construct an automata; measuring and cutting their materials, assembling the frame, choosing cams and designing the characters that sit on the followers to form an interactive shop display.</p>	<ul style="list-style-type: none"> • Find a suitable recipe for their course. • Record the relevant ingredients and equipment needed. • Follow a recipe, including using the correct quantities of each ingredient. • Write a recipe, explaining the process taken. • Explain where certain key foods come from before they appear on the supermarket shelf. <p>Spring</p> <p>Playgrounds</p> <ul style="list-style-type: none"> • Create five apparatus designs, applying the design criteria to their work. • Make suitable changes to their work after peer evaluation. • Make roughly three different structures from their plans using the materials available. • Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. • Secure their apparatus to a base andMake a range of landscape features using a variety of materials which will enhance their apparatus. <p>Waistcoats:</p> <ul style="list-style-type: none"> • Consider a range of factors in their design criteria and use this to create a waistcoat design. • Use a template to mark and cut out a design. • Use a running stitch to join fabric to make a functional waistcoat.
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<ul style="list-style-type: none"> • To know which mechanisms are working together to make a mechanical system. • To know that there are different directions of movement. • To know that mechanisms can change one type of movement to another. <p>Steady hand game:</p> <p>Design</p> <ul style="list-style-type: none"> • Designing a steady hand game - identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through sketching and discussion. • Modelling ideas through prototypes. • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'. <p>Make :</p> <ul style="list-style-type: none"> • Constructing a stable base for a game. • Accurately cutting, folding and assembling a net. • Decorating the base of the game to a high quality finish. <p>Making and testing a circuit.</p> <ul style="list-style-type: none"> • Incorporating a circuit into a base. <p>Evaluate:</p> <ul style="list-style-type: none"> • Testing own and others finished games, identifying what went well and making suggestions for improvement. • Gathering images and information about existing children's toys. • Analysing a selection of existing children's toys. <p>Technical knowledge:</p> <ul style="list-style-type: none"> • To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in a basic series circuit, including a buzzer. <p>Cooking and Nutrition:</p> <p>Design</p> <ul style="list-style-type: none"> • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. <p>Make</p> <ul style="list-style-type: none"> • Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence <p>Evaluate</p> <ul style="list-style-type: none"> • Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process. • Evaluating health and safety in production to minimise cross contamination. 				<ul style="list-style-type: none"> • Attach a secure fastening, as well as decorative objects. • Evaluate their final product. <p>Summer</p> <p>Steady hand game</p> <ul style="list-style-type: none"> • Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). • State what they like or dislike about an existing children's toy and why. • Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys. • Identify the components of a steady hand game and design it according to their own criteria. • Create a secure base for their game, with neat edges, that relates to their design.
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Technical knowledge

- To know that 'flavour' is how a food or drink tastes.
- To know that many countries have 'national dishes' which are recipes associated with that country.
- To know that 'processed food' means food that has been put through multiple changes in a factory.
- To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides.
- To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).

Automata toys:

- Follow health and safety rules, taking care with the equipment.
- Mark, saw and cut out the components and supports of their toy with varying degrees of accuracy to the intended measurements.
- Attempt a partial assembly of their toys using an exploded diagram following a teacher's demonstration.
- Develop a design idea with some descriptive notes.
- Decorate and finish the automata to meet the design criteria and brief.
- Evaluate their finished product, making descriptive and reflective points on function and form.