



SHOBNALL PRIMARY & NURSERY SCHOOL
DESIGN AND TECHNOLOGY PROGRAMME OF STUDY



LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE

Nursery	Autumn Term	Spring Term	Summer Term
Goal	<p>Goal Make a model using natural resources: Using an extensive range of natural materials, children decide on the model they want to make. They choose the materials they want to use, shape materials with tools and join materials together.</p> <p>EYFS Development Matters Physical Development</p> <ul style="list-style-type: none"> Choose the right resources to carry out their own plan. Use one-handed tools and equipment, for example, making snips in paper with scissors. <p>Understanding the World</p> <ul style="list-style-type: none"> Explore how things work. <p>Expressive Arts and Design</p> <ul style="list-style-type: none"> Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. Explore different materials freely, in order to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Create closed shapes with continuous lines, and begin to use these shapes to represent objects. 		
Milestones	<p>Explore a range of materials to build simple structures.</p> <p>Use scissors to cut straight edges.</p> <p>Use adhesives to join material.</p> <p>To explore the properties and purpose of materials they experiment with.</p>	<p>Name the tools needed to work the materials e.g. scissors for paper.</p> <p>Explore ideas by rearranging materials.</p> <p>Create designs using basic techniques.</p> <p>Begin to use technical vocabulary when appropriate.</p> <p>To use hole punches to punch holes and use other basic tools such as a saw or hammer with support.</p> <p>Develop food vocabulary using taste, smell, texture and feel.</p> <p>Explore familiar food products e.g. fruit and vegetables.</p> <p>Stir, spread and shape a range of food and ingredients.</p> <p>Work safely and hygienically.</p> <p>To make models using a variety of resources both indoors and outdoors.</p>	<p>To choose materials for a purpose.</p> <p>Discuss their work, saying what they like and do not like about items.</p> <p>To choose and join materials with increasing confidence.</p> <p>To use tools such as hammers, peelers and scissors with greater levels of confidence.</p> <p>Explore different materials freely, to develop their ideas about how to use them and what to make.</p> <p>Join different materials and explore different textures.</p>
Vocabulary	<p>Materials: scissors, spreader, glue, hammer, saw, fabric, felt, button, paper clip, clay</p> <p>Skills: build, make, snip, join, saw, design, create, stick, peel, fold, scrunch, tear, link, bend, stack</p>		

	<p>Food: equipment, ingredient, recipe, taste, smell, feel, stir, mix, chop, spread, pour, fill, empty, wash, healthy, unhealthy Texture: sharp, sticky, rough, smooth, soft, fluffy, hard, cold, spikey, wet, dry, bang, loud, tap, loose, strong, weak, explore</p>		
<p>Health and Safety</p>	<p>Consider the materials, tools and equipment being used. Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.</p> <p>Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.</p>		
<p>Suggested Trips / Enrichment</p>	<p>Specialist visitor</p>	<p>Visit from our own school chef Forest school</p>	<p>Use products to create a performance</p>

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE

Reception	Autumn Term	Spring Term	Summer Term
Goals	<p><u>Goal</u> Use natural materials to make a home for a small animal: Using the knowledge they have acquired about the natural world, children are able to select and collect a range of natural materials to construct with purposefully. They can think about and discuss what they want to make, potential problems and how they might be solved and reflect on how they have achieved their aims.</p> <p><u>Goal</u> Follow a recipe to bake a cake: Under adult supervision, children follow the steps of a recipe independently. They measure ingredients, mix them and create their own cake by placing the mixture into a container ready to be baked.</p> <p><u>EYFS Development Matters</u> Physical Development</p> <ul style="list-style-type: none"> Develop their small motor skills so that they can use a range of tools competently, safely and confidently. <p>Expressive Arts and Design</p> <ul style="list-style-type: none"> Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. <p><u>Early Learning Goals</u> Physical Development: Fine Motor Skills</p> <ul style="list-style-type: none"> Use a range of small tools, including scissors, paintbrushes and cutlery <p>Expressive Arts and Design: Creating with Materials</p> <ul style="list-style-type: none"> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function Share their creations, explaining the process they have used 		
Milestones	<p>Select materials from a range that will meet a simple design criteria.</p> <p>Build structures joining components together in a variety of ways.</p> <p>Use technical vocabulary when appropriate.</p> <p>Use a range of adhesives to join material.</p> <p>To explore junk modelling using a range of materials collected from the outdoors</p> <p>To understand the difference between natural and man-made materials.</p>	<p>Use a range of techniques for joining materials.</p> <p>Explain what they are making and which materials they are using and why.</p> <p>Create detailed designs.</p> <p>Explore simple hinges, wheels and axles.</p> <p>Use food vocabulary confidently using taste, smell, texture and feel.</p> <p>To use the correct tools to stir, spread, knead and shape a range of food and ingredients.</p> <p>Build on knowledge of familiar food products e.g. fruit and vegetables and discuss in</p>	<p>To describe simple models or drawings of ideas and intentions.</p> <p>Discuss their work as it progresses, saying what they like and do not like about items they have made and explain why.</p> <p>Use technical vocabulary when appropriate giving further examples to support explanations.</p> <p>Discuss how closely their finished products meet their design criteria</p> <p>Measure and weigh food items using non statutory measures e.g. spoons, cups</p>

		<p>some detail the need for a variety of foods in a healthy diet.</p> <p>To explain the importance of working safely and hygienically.</p> <p>To use measures and counting to mix and combine the ingredients.</p>	<p>Use a range of tools and materials with increasing independence, care and precision.</p> <p>Measure and mix ingredients.</p>
Vocabulary	<p>Materials: textile, scissors, spreader, glue, hammer, saw, fabric, felt, button, paper clip, clay</p> <p>Skills: build, make, snip, join, saw, design, stick, fold, create, peel, tear, scrunch, link, fringe, insert, slot, construct</p> <p>Food: equipment, ingredient, recipe, taste, smell, feel, stir, mix, chop, spread, pour, fill, empty, wash, healthy, unhealthy</p> <p>Texture: sharp, sticky, rough, smooth, soft, fluffy, hard, cold, spikey, wet, dry, bang, loud, tap, loose, strong, weak, explore, investigate, evaluate, structure, mechanism, function, develop, practical</p>		
Health and Safety	<p>Consider the materials, tools and equipment being used. Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.</p> <p>Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.</p>		
Suggested Trips / Enrichment	Specialist visitor	Visit from our own school chef	Use products to create a performance Forest School

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: DESIGN MAKE EVALUATE TECHNICAL KNOWLEDGE COOKING AND NUTRITION

Year 1	Autumn Term	Spring Term	Summer Term
Topic	LAND OF HOPE AND GLORY	TO INFINITY AND BEYOND!	WHERE THE WILD THINGS ARE
Key Area	Food	Structures	Textiles
Kapow Unit	Fruit and Vegetable Smoothies	Constructing a Windmill	Puppets
NC Objectives	<ul style="list-style-type: none"> - Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. - Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Evaluate their ideas and products against design criteria. - Understand where food comes from. 	<ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria. - Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. - Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Explore and evaluate a range of existing products. - Evaluate their ideas and products against design criteria. - Build structures, exploring how they can be made stronger, stiffer and more stable. - Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. 	<ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria. - Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. - Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Evaluate their ideas and products against design criteria.

Vocabulary	Blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable	Client, design, evaluation, net, stable, strong, test, weak, windmill	Decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template
Health and Safety	See Kapow D&T Risk Assessment		
Cross-Curricular Links	<p>Science: Thinking scientifically: classifying fruit and vegetables.</p> <p>Animals, including humans: learning about the importance of fruit and vegetables in the diet and food hygiene.</p>	<p>Maths: recognising 2D and 3D shapes, beginning to recognise how a net can make a 3D shape.</p> <p>Geography: learning about how windmills are used today to generate electricity (wind turbines).</p>	<p>Reading: listening to and answering questions about the main character's appearance in Little Red Riding Hood.</p>

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: DESIGN MAKE EVALUATE TECHNICAL KNOWLEDGE COOKING AND NUTRITION

Year 2	Autumn Term	Spring Term	Summer Term
Topic	FIRE, FIRE!	I HAVE A DREAM	GADGETS AND GIZMOS
Key Area	Mechanisms	Food	Structure
Kapow Unit	Fairground Wheel	A Balanced Diet	Baby Bear's Chair
NC Objectives	<ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria. - Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. - Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Explore and evaluate a range of existing products. - Evaluate their ideas and products against design criteria. - Build structures, exploring how they can be made stronger, stiffer and more stable. - Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. 	<ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria. - Explore and evaluate a range of existing products. - Evaluate their ideas and products against design criteria. - Use basic principles of a healthy and varied diet to prepare dishes. - Understand where food comes from. 	<ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on design criteria. - Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. - Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Evaluate their ideas and products against design criteria. - Build structures, exploring how they can be made stronger, stiffer and more stable.
Vocabulary	Axle, decorate, evaluation, ferris wheel, mechanism, stable, strong, test, waterproof, weak	Alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute	Function, man-made, mould, natural, stable, stiff, strong, structure, test, weak

Health and Safety	See Kapow D&T risk assessment		
Cross-Curricular Links	<p>Maths: talking about 3D shapes and naming them correctly.</p> <p>Science: discussing the properties of materials when choosing materials for their fairground wheel.</p> <p>Computing: practising drag and drop skills by creating an inspiration board (extension activity).</p>	<p>Reading: reading a letter and summarising the key points.</p> <p>Maths: using inequalities signs (< >) to compare sugar in drinks, using grams (g) to give weights.</p> <p>Science: discussing the senses that humans have, having an awareness of food hygiene.</p>	<p>Reading: discussing the events from Goldilocks and the three bears.</p> <p>Maths: creating 3D shapes from playdough, recording totals on a tally chart.</p> <p>Science: interpreting the results of a tip-test.</p> <p>Geography: identifying natural and man-made structures.</p>

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: **DESIGN** **MAKE** **EVALUATE** **TECHNICAL KNOWLEDGE** **COOKING AND NUTRITION**

Year 3	Autumn Term	Spring Term	Summer Term
Topic	MEET THE FLINTSTONES	BY THE RIVERS OF BABYLON	IRON MAN
Key Area	Textiles	Mechanical systems	Food
Kapow Unit	Cross-Stitch Applique: Cushions	Pneumatic Toys	Eating Seasonally
NC Objectives	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to 	<ul style="list-style-type: none"> - Understand and apply principles of a healthy and varied diet. - Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. - Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

		<p>improve their work.</p> <ul style="list-style-type: none"> - Understand how key events and individuals in design and technology have helped shape the world. - Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. 	
Vocabulary	Accurate, applique, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template	Exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch	Climate, dry climate, exported, imported, Mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate
Health and Safety	See Kapow D&T risk assessment		
Cross-Curricular Links	<p>Maths: choosing a 2D shape for their cushion, using knowledge of length to leave correct space for stuffing, seam and running stitch length.</p> <p>Art and design: designing a theme for their applique shapes.</p>	<p>Art and design: decorating their pneumatic toys with embellishments.</p> <p>Geography: discussing how electricity can be made using wind and sea power.</p>	<p>Reading: following the instructions in a recipe.</p> <p>Geography: knowing what climate is and that it affects food growth, reading information from a map of the world, knowing the environmental impact of importing food.</p>

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: DESIGN MAKE EVALUATE TECHNICAL KNOWLEDGE COOKING AND NUTRITION

Year 4	Autumn Term	Spring Term	Summer Term
Topic	THE EMPIRE STRIKES BACK	GAME OF THRONES	ANY DREAM WILL DO
Key Area	Structures	Digital World	Electrical Systems
Kapow Unit	Pavilions	Mindful Moments Timer	Torches
NC Objectives	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Apply their understanding of computing to program, monitor and control their products 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Understand how key events and individuals in design and technology have helped shape the world.

			- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].
Vocabulary	Aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme	2D, advantage, assemble, block, brand identity, branding, bug, CAD, cheap, clipart, coding, criteria, debug, design, develop, disadvantage, ergonomic, evaluate, form, function, instructions, join, logo, loop, mindfulness, model, net, pause, process, program, prototype, research, sketchpad, template, test, timer, user, variable	Battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electricity, electronic item, function, insulator, series circuit, switch, test, torch, wire
Health and Safety	See Kapow D&T risk assessment		
Cross-Curricular Links	<p>Maths: building 3D shapes to test the strength of different structures.</p> <p>Art and design: creating textural effects with materials to clad their structure.</p>	<p>Maths: creating a 3D structure using a net.</p> <p>Art and design: decorating their mindful moments timer case.</p> <p>Computing: programming a micro:bit to function as a timer, debugging code, using software to create logos.</p> <p>RSE/PSHE: sharing ways to be mindful and how this helps us to look after our mental health.</p>	<p>Science: Electricity: identifying electrical products, conductors and insulators, building a simple series circuit with a switch.</p> <p>History: learning about life before electricity.</p> <p>RSE/PSHE: identifying electrical hazards.</p>

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: DESIGN MAKE EVALUATE TECHNICAL KNOWLEDGE COOKING AND NUTRITION

Year 5	Autumn Term	Spring Term	Summer Term
Topic	OFF WITH THEIR HEADS!	EXPELLIARMUS	HOUSE OF WISDOM
Key Area	Food	Textiles	Mechanical Systems
Kapow Unit	Stuffed Toys	What Could be Healthier?	Making a Pop-Up Book
NC Objectives	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Understand how key events and individuals in design and technology have helped shape the world. - Understand and apply principles of a healthy and varied diet. - Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. - Understand seasonality, and know 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].

		where and how a variety of ingredients are grown, reared, caught and processed.	
Vocabulary	Accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template	Beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare	Aesthetic, computer-aided design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template
Health and Safety	See Kapow D&T risk assessment		
Cross-Curricular Links	Maths: measuring accurately.	Art and design: designing a label for their bolognaise. Computing: using search engines to research variations of a recipe. RSE/PSHE: considering the rights of animals and the ethical issues behind cattle farming, understanding what makes a balanced diet, reading nutritional values and deciding which recipe is healthier.	English: adding captions to their pop-up books to suit the audience. Art and design: drawing components for their pop-up books.

LONG TERM OVERVIEW FOR DESIGN AND TECHNOLOGY

KEY: DESIGN MAKE EVALUATE TECHNICAL KNOWLEDGE COOKING AND NUTRITION

Year 6	Autumn Term	Spring Term	Summer Term
Topic	VICTORY IS OURS!	GREAT EXPECTATIONS	TROY STORY
Key Area	Electrical Systems	Structures	Digital World
Kapow Unit	Steady Hand Game	Playgrounds	Navigating the World
NC Objectives	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Understand how key events and individuals in design and technology have helped shape the world. - Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. - Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. 	<ul style="list-style-type: none"> - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Apply their understanding of computing to program, monitor and control their products.

Vocabulary	Assemble, battery, battery pack, benefit, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, fine motor skills, fit for purpose, form, function, gross motor skills, insulator, LED, user	Adapt, apparatus, bench hook, cladding, coping saw, design, dowel, evaluation, feedback, idea, jelutong, landscape, mark out, measure, modify, natural materials, plan view, playground, prototype, reinforce, sketch, strong, structure, tenon saw, texture, user, vice, weak	3D CAD, application (apps), biodegradable, Boolean, cardinal compass, client, compass, concept, convince, corrode, duplicate, environmentally friendly, equipment, feature, finite, function, functional, GPS tracker, if statement, infinite, investment, lightweight, loop, manufacture, materials (wood, metal, plastic etc.), mouldable, navigation, non-recyclable, product lifecycle, product lifespan, program, recyclable, smart, sustainable, sustainable design, unsustainable, design, variable, workplane
Health and Safety	See Kapow D&T risk assessment		
Cross-Curricular Links	<p>Maths: using net templates to create the base of their game.</p> <p>Science: drawing circuit diagrams, naming components and their functions.</p> <p>Art and design: exploring one line drawings.</p> <p>Computing: recapping rules for safe online searching.</p>	<p>Maths: measuring accurately to the nearest mm.</p> <p>Art and design: creating textural effects with materials to clad their structure.</p>	<p>Reading: finding key points in a clients letter to create design criteria.</p> <p>Spoken language: presenting a pitch about their product.</p> <p>Science: considering materials and their functional properties.</p> <p>Computing: programming a compass (all), pedometer and a light/thermometer (extension), using CAD skills to produce a virtual model.</p> <p>Geography: considering sustainability in design.</p>