Great Corby School and Nursery

Design and Technology Progression

The EYFS framework is structured very differently to the national curriculum as it is organised across **seven areas of learning** rather than subject areas.

- Communication and Language
- Personal, social and emotional development
- Physical development
- Literacy
- Mathematics
- Understanding the World
- Expressive art and design.

Alongside the seven areas of learning are t**he Characteristics of effective teaching and learning.**

In planning and guiding what children learn, practitioners must reflect on the different rates at which children are developing and adjust their practice appropriately.

Three characteristics of effective teaching and learning are:

• playing and exploring – children investigate and experience things, and 'have a go'

• active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements

• creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things

Taken from Development Matters revised 2021

The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects.

Children are given opportunities to develop their own play and independent exploration through our vision of curiosity and wonder. Communication and Language and Personal, Social and Emotional Development are intertwined in everything we do.

This document demonstrates which statements from the revised 2021 Development Matters are prerequisite skills for **Design and Technology** within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for **Design and Technology.**

The most relevant statements for **Design and Technology** are taken from the following areas of learning:

•Personal, Social and Emotional Development

•Physical Development

•Understanding the World.

•Expressive Art and Design

Design and Technology					
Development Matters			**Vocabulary**	**Examples of how this is achieved in EYFS**	**Design and Technology in Key Stage 1**
Birth to Three	Personal, Social and Emotional Development	•Express preference and decision. They also try new things and start establishing their autonomy.	• Design • Build • Cut • Join • Measure • Tools • Explain / Evaluate	Children can self-select from a range of tools and materials in the continuous provision. Children learn by experimenting with tools such as scissors, staplers and hole punches. They make use of fixing and joining materials such as sellotape, masking tape, string, pipe cleaners and glue. Through questioning children are encouraged to talk about what they like about their work and other children's designs and how they would improve it. **Activity Examples:** • Designing and making a kite on a windy day, choosing the best materials. • Building a minibeast hotel outside. • Creating rockets using outdoor blocks.	Design • 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. Make • 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 • Explore and evaluate a range of existing products. • Evaluate their ideas and products against design criteria. Technical knowledge
Three and Four-Year-Olds	Personal, Social and Emotional Development	• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one, which is suggested to them.			
	Physical Development	• Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors			
	Understanding the World	• Explore how things work.			
	Expressive Arts and Design	• 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.			

Children in Reception	Physical Development		• Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.		• Using junk model boxes to create boxes for animals inspired by the book 'Dear Zoo.' • Using tools to prepare snack – Butter crackers / cut bananas. • Selecting the best resources for den building outside. • Cookery - Observing the effects of heat when making cakes – Watching them rise. Creating products for a purpose – Making a basket for fruit, (Handa's Surprise).	• 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.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.			
ELG	Physical Development	Fine Motor Skills	Use a range of small tools, including scissors, paint brushes and cutlery; - Begin to show accuracy and care when drawing.			
	Expressive Arts and Design	Creating with Materials ELG	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; - Make use of props and materials when role playing characters in narratives and stories.			

Key Stage 1	Key Stage 2	Key Stage 3
Pupils should be taught about:	Pupils should be taught to:	
Design	**Design**	**Design**
• 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	• 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	• Use research and exploration, such as the study of different cultures, to identify and understand user needs • Identify and solve their own design problems and understand how to reformulate problems given to them • Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses • Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools
Make	**Make**	**Make**
• 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	• 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 wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	• Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties
Evaluate	**Evaluate**	**Evaluate**
• Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria	• 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	• Analyse the work of past and present professionals and others to develop and broaden their understanding • Investigate new and emerging technologies • Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups • Understand developments in design and technology, its impact on individuals, society and the environment, and the

Technical knowledge

- 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.

Cooking and Nutrition

- Use the basic principles of a healthy and varied diet to prepare dishes
- Understand where food comes from

Technical knowledge

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition

- Understand and apply the principles of a healthy and varied diet
- Prepare and cook a 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.

responsibilities of designers, engineers and technologists
Design and technology – key stage 3

Technical knowledge

- Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- Understand how more advanced mechanical systems used in their products enable changes in movement and force
- Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

Cooking and Nutrition

- Understand and apply the principles of nutrition and health
- Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet
- Become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]
- Understand the source, seasonality and characteristics of a broad range of ingredients.

		CYCLE A – Design and Technology Progression Overview				
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
KS1 (Y 1 + 2)	**Y1: Structures: Constructing Windmills** • Identify some features that would appeal to the client (a mouse) and create a suitable design. • Explain how their design appeals to the mouse. • Make stable structures, which will eventually support the turbine, out of card, tape and glue. • Make functioning turbines and axles that are assembled into the main supporting structure. • Say what is good about their windmill and what they could do better. **Vocabulary** Axle Bridge Design Design criteria Model Net Packaging Structure Template Unstable Stable Strong Weak		**Y1: Mechanisms – Making a Moving Storybook** • Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make. • Clearly label drawings to show which parts of their design will move and in which direction. • Make a picture, which meets the design criteria, with parts that move purposefully as planned.	**Y1: Textiles – Puppets** • Join fabrics together using pins, staples or glue. • Design a puppet and use a template. • Join their two puppets' faces together as one. • Decorate a puppet to match their design. **Vocabulary** Decorate Design Fabric Glue Model Hand puppet Safety pin Staple Stencil Template **Cultural Capital**	**Y1: Food – Fruit and Vegetables** • Describe fruits and vegetables and explain why they are a fruit or a vegetable. • Name a range of places that fruits and vegetables grow. • Describe basic characteristics of fruit and vegetables. • Prepare fruits and vegetables to make a smoothie. **Vocabulary** Fruit Seed Root Smoothie Carton Flavour Vegetable Leaf Steam Healthy Design	**Y1: Mechanisms – Wheels and Axels** • Explain that wheels move because they are attached to an axle. • Recognise that wheels and axles are used in everyday life, not just in cars. • Identify and explain vehicle design flaws using the correct vocabulary. • Design a vehicle that includes functioning wheels, axles and axle holders. • Make a moving vehicle with working wheels and axles. • Explain what must be changed if

			• Evaluate the main strengths and weaknesses of their design and suggest alterations. **Vocabulary** Sliders Mechanism Adapt Design criteria Design Input Model Template Assemble Test **Cultural Capital** Share their finished product with the EYFS	Perform a puppet show to LKS2.	Peel Slice	there are any operational issues. **Vocabulary** Axle Chassis Dowel Mechanism Axle holder Diagram Equipment Wheel
LKS2 (Y 3 + 4)	**Y3: Food – Eating Seasonally** • Explain that fruits and vegetables grow in different countries based on their climates. • Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. • Know that eating seasonal fruit and vegetables has a positive effect on the environment. • Design their own tart recipe using seasonal ingredients.	**Y3: Structures – Constructing a Castle** • Draw and label a simple castle that includes the most common features. • Recognise that a castle is made up of multiple 3D shapes. • Design a castle with key features which satisfy a given purpose. • Score or cut along lines on the net of a 2D shape. • Use glue to securely assemble geometric shapes. • Utilise skills to build a complex structure from simple geometric shapes.	**Y3: Electrical Systems – Electrical Poster** • Explain what 'information design' is and understand its impact, considering what could happen if we had no signage, posters, or written communication in public places of interest.	**Y3: Textiles – Egyptian Collars** • Demonstrate their ability to use cross-stitch as a decorative feature or to join two pieces of fabric together. • Develop appliqué designs based on design criteria. • Design, cut and shape their template for an	**Y3: Digital Word – Electronical Charm** • Give a brief explanation of the digital revolution and/or remember key examples. • Suggest a feature from the Micro:bit that is suitable for an eCharm. • Write a program that initiates a flashing LED panel, or	**Y3: Mechanical Systems – Pneumatic Toys** • Draw accurate diagrams with correct labels, arrows and explanations. • Correctly identify definitions for key terms. • Identify five appropriate design criteria. • Communicate two ideas using thumbnail sketches.

• Understand the basic rules of food hygiene and safety. • Follow the instructions within a recipe. **Vocabulary** Climate Imported Natural Reared Seasonal Diet Ingredients Processed Recipe Seasons Sugar	• Evaluate their work by answering simple questions. **Vocabulary** 2D 3D Castle Key features Scoring Stable Strong Design Net Shape Stiff Structure **Cultural Capital** Visit Carlisle Castle	• Research and choose a specific Ancient Roman topic on which to base their initial poster ideas. • Complete design criteria based on a client's request. • Roughly sketch four initial poster ideas, indicating where a bulb will be located for each. • Review their initial ideas against the design criteria and peer feedback, developing a final design. • Assemble an electric poster, including a functional simple circuit with a bulb, following a demonstration. • Acknowledge, with a brief explanation, the need to mount the	usekh/wesekh collar, with increasing accuracy. • Decorate their Egyptian collar using a variety of techniques such as appliqué, cross-stitch, beads, buttons and pinking. • Measure and attach a ribbon with a running stitch. • Recognise different types and qualities of fabrics. • Explain the aesthetic and/or functional properties of some of their material choices. **Vocabulary** Appliqué Fabric Patch Embellish Cotton Polyester Tear Breathable Shiny Cross-stitch Running stitch	another pattern, on the Micro:bit when a button is pressed. • Identify errors, if testing is unsuccessful, by comparing their code to a correct example. • Explain the basic functionality of their finished program. • Suggest key features for a pouch, with some consideration for the overall theme and the user. • Use a template when cutting and assembling a pouch, with some support. • Describe what is meant by 'point of sale display' with an example. • Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours,	• Communicate and develop one idea using an exploded diagram. • Select appropriate equipment and materials to build a working pneumatic system. • Assemble their pneumatic system within the housing to create the desired motion. • Create a finished pneumatic toy that fulfils the design brief. **Vocabulary** Mechanism Pivot Pneumatic system Output Thumbnail sketch Adapt Reinforce Lever Linkage system Input Component Research Properties Motion **Cultural Capital** Share with EYFS

			poster using corrugated card. • Test that the simple circuit works by adding a battery. • Evaluate their electric posters in a letter to a client. **Vocabulary** Information design Public Research Sketch Self-assessment Feedback Final design Electric product Circuit component Battery Design Design criteria Initial ideas Bulb Peer assessment Develop Electrical system Circuit Crocodile wires	Thread Template Silk Wrinkle Water-resistant Matt Biodegrade Pinking	following a demonstration. • Evaluate their design. **Vocabulary** Smart wearables Digital revolution Analogue Feature Digital world Electronic products Loops Simulator Motor Template Fasten User Product design Technology Digital Function Micro:bit Program Initiate Control Sense Develop Test CAD (Computer Aided Design Badge Display Point of sale	

UKS2 (Y 5 + 6)	Y5: Mechanical Systems – Making a Pop-Up Book	Y5: Electrical Systems – Doodlers	Y5: Food – What Could be Healthier?	Y5: Structures – Bridges	Y5: Textiles – Stuffed Toys	Y5: Digital World – Monitoring Devices
	• Produce a suitable plan for each page of their book. • Produce the structure of the book. • Assemble the components necessary for all their structures/mechanisms. • Hide the mechanical elements with more layers using spacers where needed. • Use a range of mechanisms and structures to illustrate their story and make it interactive for the users. • Use appropriate materials and captions to illustrate the story. **Vocabulary** Design Motion Criteria Reinforce Input Mechanism Research Model **Cultural Capital** Share with EYFS	• Identify simple circuit components (battery, bulb and switch) with a basic explanation of their function. • Explain that a series circuit is assembled in a loop to allow the electricity to flow along one path. • Describe a motor as a circuit component that changes electrical energy into movement. • Provide examples of motorised products that use movement to rotate or spin different parts. • Remove and replace different parts of a Doodler, as part of a team. • Suggest ways to switch the configuration to amend the form or function of the Doodler. • Explain, in an investigation report, each of the changes they made and the effect this had on the Doodler's ability to draw scribbles (function) and appearance (form). • Develop design criteria with consideration for the target user, the purpose of their Doodler, a key function and the Doodler's form and final appearance (e.g. fun, bright, soft). • Explain simply why their Doodler has a certain	• Understand how beef gets from the farm to our plates. • Present a subject as a poster with clear information in an easy to read format. • Contribute ideas as to what a 'healthy meal' means. • Notice the nutritional differences between different products and recipes. • Recognise nutritional differences between two similar recipes and give some justification as to why this is. • Work as a team to amend a bolognese recipe with healthy adaptations. • Follow a recipe to produce a healthy	• Identify stronger and weaker shapes. • Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. • Identify beam, arch and truss bridges and describe their differences. • Use triangles to create simple truss bridges that support a load (weight). • Cut beams to the correct size, using a cutting mat. • Smooth down any rough-cut edges with sandpaper. • Follow each stage of the truss bridge creation as instructed by their teacher. • Complete a bridge, with varying ranges of accuracy and	• Design a stuffed toy, considering the main component shapes of their toy. • Create an appropriate template for their stuffed toy. • Join two pieces of fabric using a blanket stitch. • Neatly cut out their fabric. • Use appliqué or decorative stitching to decorate the front of their stuffed toy. • Use blanket stitch to assemble their stuffed toy, repairing when needed. • Identify what worked well and areas for improvement. **Vocabulary** Accurate Annotate Appendage Blanket-stitch Design criteria Detail Evaluation Fabric	• Describe what is meant by monitoring devices and provide an example. • Explain briefly the development of thermometers from thermoscopes to digital thermometers. • Research a chosen animal's key information to develop a list of design criteria for an animal monitoring device. • Write a program that monitors the ambient temperature and alerts someone when the temperature moves from a specified range. • Identify errors (bugs) in the code and ways to fix (debug) them.

		configuration based on the findings of their investigation (e.g. I used four pens because the Doodler would fall over with two). • Create a functional Doodler that creates scribbles on paper with or without a switch. • Identify and list each of the required materials, tools and circuit components required to build a Doodler. • Explain simply the steps to assemble a Doodler as part of a set of instructions (or storyboard). • Write instructions to build a functional circuit, explaining how to identify if it is functional or not. • Provide suggestions to improve a peer's set of instructions after testing how effective they are at guiding someone. **Vocabulary** Circuit component Current DIY Motor Problem -solve Series circuit Configuration Develop Investigate Motorised Product analysis Stable Target user	bolognese sauce. • Design packaging that promotes the ingredients of the bolognese. **Vocabulary** Beef Processed Diet Supermarket Reared Ethical Ingredients Farm Balanced **Cultural Capital**	finish, supported by the teacher. • Identify some areas for improvement, reinforcing their bridges as necessary. **Vocabulary** Beam bridge Arch bridge Truss bridge Strength Technique Corrugation Lamination Stiffness Rigid Factors Stability Visual appeal Aesthetics Joints Mark out Hardwood Softwood Wood file/rasp Sandpaper/glasspaper Bench hook/vice Tenon saw/coping saw Assemble Material properties Reinforce Wood sourcing Evaluate Quality of finish Accuracy **Cultural Capital** Visit to London	Sew Shape Stuffed toy Stuffing Template =	• State one or two facts about the history and development of plastic, including how it is now affecting planet Earth. • Build a variety of brick models to invent Micro:bit case, housing and stand ideas, evaluating the success of their favourite model. • Explain key pros and cons of virtual modelling vs physical modelling. • Recall and describe the name and use of key tools used in Tinkercad (CAD) software. **Vocabulary** Monitoring device Electronic Sensor Thermoscope Thermometer Research Design brief Design criteria Development

					Inventor
					Vivarium
					Programming loop
					Programming comment
					Alert
					Ambient
					Boolean
					Duplicate
					Copy
					Value
					Variable
					Model
					Sustainability
					Plastic
					Microplastics
					Decompose
					Plastic pollution
					Man-made
					Synthetic

		CYCLE B – Design and Technology Progression Overview				
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KS1 (Y 1 + 2)	Y2: Mechanisms – Making a Moving Monster • Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make. • Clearly label drawings to show which parts of their design will move and in which direction. • Make a picture, which meets the design criteria, with parts that move purposefully as planned. • Evaluate the main strengths and weaknesses of their design and suggest alterations. **Vocabulary** Axle Design criteria Input Linkage Mechanical Output Pivot Wheel		Y2: Mechanism – Fairground Wheel • Design and label a wheel. • Consider the designs of others and make comments about their practicality or appeal. • Consider the materials, shape, construction and mechanisms of their wheel. • Label their designs. • Build a stable structure with a rotating wheel. • Test and adapt their designs as necessary. • Follow a design plan to make a completed model of the wheel. **Vocabulary** Design Wheel Pods Axle holder Design criteria Ferris wheel Axle Frame Mechanism **Cultural Capital**	Y2: Textiles – Pouches • Sew a running stitch with regular-sized stitches and understand that both ends must be knotted. • Prepare and cut fabric to make a pouch from a template. • Use a running stitch to join the two pieces of fabric together. • Decorate their pouch using the materials provided. **Vocabulary** Decorate Fabric glue Needle Running stitch Template Fabric Knot	Y2: Food – A Balanced Diet • Name the main food groups and identify foods that belong to each group. • Describe the taste, texture and smell of a given food. • Think of four different wrap ideas, considering flavour combinations. • Construct a wrap that meets the design brief and their plan. **Vocabulary** Balanced diet Carbohydrate Fruit Oils Protein Balance Dairy Ingredients Sugar Vegetable	Y2: Structures – Baby Bear's Chair • Identify man-made and natural structures. • Identify stable and unstable structural shapes. • Contribute to discussions. • Identify features that make a chair stable. • Work independently to make a stable structure, following a demonstration. • Explain how their ideas would be suitable for Baby Bear. • Produce a model that supports a teddy, using the appropriate materials and construction techniques. • Explain how they made their

				Needle threader Sew Thread Cultural Capital	Design criteria Cultural Capital	model strong, stiff and stable Vocabulary Design criteria Natural Sculpture Shape Man-made Properties Stable Model Test Cultural Capital
LKS2 (Y 3 + 4)	**Y4: Structures: Pavilions** • Produce a range of free-standing frame structures of different shapes and sizes. • Design a pavilion that is strong, stable and aesthetically pleasing. • Select appropriate materials and construction techniques to create a stable, free-standing frame structure. • Select appropriate materials and techniques to add cladding to their pavilion. **Vocabulary** 3D shapes Design criteria Natural Cladding Innovate Reinforce Structure **Cultural Capital**	**Y4: Food – Adapting a Recipe** • Follow a recipe, with some support. • Describe some of the features of a biscuit based on taste, smell, texture and appearance. • Adapt a recipe by adding extra ingredients to it. • Plan a biscuit recipe within a budget. **Vocabulary** Design criteria Texture Aesthetic Cross-contamination Processed Research Innovative Measure	**Y4: Mechanical Systems – Making a Slingshot Car** • Work independently to produce an accurate, functioning car chassis. • Design a shape that is suitable for the project. • Attempt to reduce air resistance through the design of the shape. • Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. • Construct car bodies effectively. • Conduct a trial accurately and draw conclusions and improvements from the results. **Vocabulary** Chassis Kinetic	**Y4: Textiles – Fastenings** • Identify the features, benefits and disadvantages of a range of fastening types. • Write design criteria and design a sleeve that satisfies the criteria. • Make a template for their book sleeve. • Assemble their case using any stitch they are comfortable with. **Vocabulary**	**Y4: Electrical Systems – Torches** • Identify electrical products and explain why they are useful. • Help to make a working switch. • Identify the features of a torch and how it works. • Describe what makes a torch successful. • Create suitable designs that fit the success criteria and their own design criteria. • Create a functioning torch with a switch	**Y4: Digital World – Mindful Moments Timer** • State and/or describe the advantages and disadvantages of existing products (timers). • Understand how Micro:bit features could be used as part of a design idea. • Write a program that displays a timer on the Micro:bit based on their chosen seconds/minutes. • Suggest where the errors are, if testing is unsuccessful, by comparing the correct code to their own.

		Diet Packaging **Cultural Capital**	Air resistance Structure Research Energy Mechanism Design Graphics Model Template **Cultural Capital**	Criteria Fastening Mock-up Fabric Fix Stitch Template **Cultural Capital**	according to their design criteria. **Vocabulary** Battery Bulb Buzzer Conductor Circuit Circuit diagram Electricity Insulator Series circuit Switch Component Design Design criteria Diagram Evaluation LED Model Shape Target audience Input Recyclable Theme Aesthetics Assemble Equipment Ingredients Packaging Properties **Cultural Capital**	• State key functions in the program editor (e.g. loops). • Cut out a box net carefully, assembling it securely into a box using tape or glue and tabs and ensuring it has a slot for the Micro:bit display. • Evaluate the immediate appeal of the Micro:bit timer and how it might function. • Express which stages of the project they enjoyed or found more challenging. • Explain the need for a company to stand out against competition and/or state the importance of logos in business. • Recall and describe the name and use of key tools used in Sketchup (CAD) software. • Fulfil the design requirements of the logo.

						Vocabulary
						Research Advantage Disadvantage Criteria Design Ergonomic Timer Program Loop Coding Block Variable Pause Bug Debug Instructions Net Template Develop Join Assemble Test Form Function Prototype Process Cheap User Cultural Capital
UKS2 (Y 5 + 6)	Y6: Textiles – Waistcoats • 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.	Y6: Electrical Systems – Steady Hand Game • Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works).	Y6: Structures – Playgrounds • Create five apparatus designs, applying the design criteria to their work. • Make suitable changes to their work after peer evaluation.	Y6: Food – Come Dine with Me • Find a suitable recipe for their course. • Record the relevant ingredients	Y6: Digital World – Navigating the World • Incorporate key information from a client's design request such as 'multifunctional' and 'compact'	Y6: Mechanical Systems – Automata Toys • Mark, saw and cut out the components and supports of their toy with a varying degree of accuracy to the

• Use a running stitch to join fabric to make a functional waistcoat. • Attach a secure fastening, as well as decorative objects. • Evaluate their final product. **Vocabulary** Annotate Design criteria Target customer Decorate Fabric Waistcoat Waterproof **Cultural Capital**	• 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. • Design a steady hand game of their own according to their design criteria, using four different perspective drawings. • Create a secure base for their game, with neat edges, that relates to their design. • Make and test a functioning circuit and assemble it within a case. **Vocabulary** Assemble Battery Battery pack	• 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. • Make a range of landscape features using a variety of materials which will enhance their apparatus. **Vocabulary** Apparatus Equipment Landscape features Design criteria Playground Cladding **Cultural Capital**	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. **Vocabulary** Equipment Ingredients Research Bridge method Cross-contamination Preparation Flavours Method Recipe Cookbook Farm to fork Storyboard **Cultural Capital**	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. • Identify key industries that use 3D CAD modelling and why. • Recall and describe the name and use of key tools used in Tinkercad (CAD) software. • Combine more than one object to develop a	intended measurements. • Follow health and safety rules, taking care with the equipment. • Attempt a partial assembly of their toys using an exploded-diagram, following a teacher's demonstration. • Develop a design idea with some descriptive notes. • Explore different cam profiles and choose three for their follower toppers with an explanation of their choices. • Create neat, decorated follower toppers with some accuracy. • Measure and cut panels that fit with some inaccuracies to conceal the inner workings of the automata. • Decorate and finish the automata to meet the design criteria and brief.

| | | 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

Cultural Capital | | | finished 3D CAD model in Tinkercad.
• Complete a product pitch plan that includes key information.
Vocabulary
Smart
Smartphone
Equipment
Navigation
Cardinal compass
Application (apps)
Pedometer
GPS tracker
Design brief
Design criteria
Client
Function
Program
Duplicate
Replica
Loop
Variable
Value
If statement
Boolean
Corrode
Moudable
Lightweight
Sustainable design
Environmentally friendly
Biodegradable
Recyclable
Product lifecycle

Cultural Capital | • Evaluate their finished product, making descriptive and reflective points on function and form.
Vocabulary
Accurate
Assembly-diagram
Automata
Axle
Bench hook
Cam
Clamp
Component
Cutting list
Diagram
Dowel
Drill bits
Exploded-diagram
Finish
Follower
Frame
Function
Hand drill
Jelutong
Linkage
Mark out
Measure
Mechanism
Model
Research
Right-angle
Set square
Tenon saw

Cultural Capital |