	Danson Primary School - Design and Technology – Digital World – KS2				
		Year 3	Year 5	Year 6	
		Electronic Charm	Monitoring Devices	Navigating the World	
Skills	Design	 I can problem solve by suggesting potential features on a Micro:bit and justifying my ideas. I can develop design ideas for a technology pouch. I can draw and manipulate 2D shapes, using computer-aided design, to produce a point-of-sale badge. 	 I can research (books, internet) for a particular (user's) animal's needs. I can develop design criteria based on research. I can generate multiple housing ideas using building bricks. I can understand what a virtual model is and the pros and cons of traditional and CAD modelling. I can place and manoeuvre 3D objects, using CAD. I can change the properties of, or combining one or more 3D objects, using CAD 	 I can write a design brief from information submitted by a client. I can develop design criteria to fulfil the client's request. I can consider and suggest additional functions for my navigation tool. I can develop a product idea through annotated sketches. I can place and manoeuvre 3D objects, using CAD. I can change the properties of, or combining one or more 3D objects, using CAD. 	
	Make	 I can use a template when cutting and assembling the pouch. I can follow a list of design requirements. I can select and use the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch. I can apply functional features such as using foam to create soft buttons. 	 I can understand the functional and aesthetic properties of plastics. I can programme to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range. 	 I can consider materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). I can explain material choices and why they were chosen as part of a product concept. I can programme an N, E, S, W cardinal compass. 	
	Evaluate	 I can analyse and evaluate an existing product. I can identify the key features of a pouch. 	 I can state an event or fact from the last 100 years of plastic history. I can explain how plastic is affecting planet Earth and suggesting ways to make more sustainable choices. I can explain key functions in my program (audible alert, visuals). I can explain how my product would be useful for an animal carer including programmed features. 	 I can explain how my program fits the design criteria and how it would be useful as part of a navigation tool. I can develop an awareness of sustainable design. I can identify key industries that utilise 3D CAD modelling and explain why. I can describe how the product concept fits the client's request and how it will benefit the customers. I can explain the key functions in my program, including any additions. I can explain how my program fits the design criteria and how it would be useful as part of a navigation tool. I can explain the key functions and features of my navigation tool to the client as part of a product concept pitch. I can develop a functional program as part of a product concept pitch. 	

Knowledge	 I understand that, in programming, a 'loop' is code that repeats something again and again until stopped. I know that a Micro:bit is a pocket-sized, codeable computer I know that in Design and technology the term 'smart' means a programmed product. I understand what is meant by 'point of sale display.' I know that CAD stands for 'Computer-aided design'. 	 I know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record. I know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose. I understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met. I know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future. I know the 6Rs of sustainability. 	 I know that accelerometers can detect movement. I understand that sensors can be useful in products as they mean the product can function without human input. I know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. I know that 'multifunctional' means an object or product has more than one function. I know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.
Vocabulary	smart wearables, product design, digital revolution, technology, analogue, digital, feature, function, digital world, Micro:bit, electronic products, program, loops, initiate, simulator, control, monitor, sense, template, develop, fasten, test, user, CAD (computer-aided design), point of sale, display, badge, stand	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	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, mouldable, lightweight, sustainable design, environmentally friendly, biodegradable, recyclable, product lifecycle, product lifespan
National Curriculum	 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 Understand how key events and individuals in design and technology have helped shape the world Apply their understanding of computing to program, monitor and control their products 	 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 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 Apply their understanding of computing to program, monitor and control their products Apply their understanding of computing to program, monitor and control their products 	 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