



# Digital World KS2

		<u>Year 3</u> <b>Electronic Charm</b>	<u>Year 4</u> <b>Mindful Moments timer</b>	<u>Year 5</u> <b>Monitoring Devices</b>	<u>Year 6</u>
<b>Skills</b>	<b>Design</b>	<p>Problem solving by suggesting potential features on a Micro:bit and justifying my ideas.</p> <ul style="list-style-type: none"> <li>• Developing design ideas for a technology pouch.</li> <li>• Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing design criteria for a programmed timer (Micro:bit).</li> <li>• Exploring different mindfulness strategies.</li> <li>• Applying the results of my research to further inform my design criteria.</li> <li>• Developing a prototype case for my mindful moment timer.</li> <li>• Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo.</li> <li>• Following a list of design requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Researching (books, internet) for a particular (user's) animal's needs.</li> <li>• Developing design criteria based on research.</li> <li>• Generating multiple housing ideas using building bricks.</li> <li>• Understanding what a virtual model is and the pros and cons of traditional and CAD modelling.</li> <li>• Placing and manoeuvring 3D objects, using CAD.</li> <li>• Changing the properties of, or combining one or more 3D objects, using CAD.</li> </ul>	

	<b>Make</b>	<p>Using a template when cutting and assembling the pouch.</p> <ul style="list-style-type: none"> <li>• Following a list of design requirements.</li> <li>• Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch.</li> <li>• Applying functional features such as using foam to create soft buttons.</li> </ul>	<ul style="list-style-type: none"> <li>• Developing a prototype case for my mindful moment timer.</li> <li>• Creating a 3D structure using a net.</li> <li>• Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the functional and aesthetic properties of plastics.</li> <li>• Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range.</li> </ul>	
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Analysing and evaluating an existing product.</li> <li>• Identifying the key features of a pouch.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages.</li> <li>• Evaluating my Micro:bit program against points on my design criteria and amending them to include any changes I made.</li> <li>• Documenting and evaluating my project.</li> <li>• Understanding what a logo is and why they are important in the world of design and business.</li> <li>• Testing my program for bugs (errors in the code).</li> <li>• Finding and fixing the bugs (debug) in my code</li> </ul>	<ul style="list-style-type: none"> <li>• Stating an event or fact from the last 100 years of plastic history.</li> <li>• Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices.</li> <li>• Explaining key functions in my program (audible alert, visuals).</li> <li>• Explaining how my product would be useful for an animal carer including programmed features.</li> </ul>	

# Knowledge

<h2>Technical</h2>	<ul style="list-style-type: none"> <li>• To understand that, in programming, a 'loop' is code that repeats something again and again until stopped.</li> <li>• To know that a Micro:bit is a pocket-sized, codeable computer.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand what variables are in programming.</li> <li>• To know some of the features of a Micro:bit.</li> <li>• To know that an algorithm is a set of instructions to be followed by the computer.</li> <li>• To know that it is important to check my code for errors (bugs).</li> <li>• To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record.</li> <li>• To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose.</li> <li>• To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met.</li> </ul>	
	<h2>Additional</h2>	<ul style="list-style-type: none"> <li>• To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result.</li> <li>• To know that in Design and technology the term 'smart' means a programmed product.</li> <li>• To know the difference between analogue and digital technologies.</li> <li>• To understand what is meant by 'point of sale display.'</li> <li>• To know that CAD stands for 'Computer-aided design'.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand the terms 'ergonomic' and 'aesthetic'.</li> <li>• To know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials</li> </ul>	<ul style="list-style-type: none"> <li>• To understand key developments in thermometer history.</li> <li>• To 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.</li> <li>• To know the 6Rs of sustainability.</li> <li>• To understand what a virtual model is and the pros and cons of traditional vs CAD modelling.</li> </ul>

