Forest of Galtres
ANGLICAN METHODIST
PRIMARY SCHOOL

Design Technology UKS2
Summer Term
Cycle B 2023

Curriculum enrichment (linked to Enquiry Question)	DT Showcase
Literacy Rich Curriculum	High quality texts

Our Curriculum Key Drivers - Flourishing for All, Diversity and Challenge

L	Enquiry questions	Connect knowledge (Super 6)	Key Teacher subject knowledge	Substantive knowledge	Disciplinary knowledge	Apply (lesson - planned in phases)	Key Vocabulary	Outcome of Lesson
1	To write a design brief and criteria based on a client request.		Please note that the BBC micro:bit devices are not essential to complete the Digital world series of units, so long as the pupils can demonstrate their understanding of the following: Build a program, following design criteria, using the 'Micro:bit MakeCode editor'. Explain how the program works together with any designs (virtual or physical) to form a functional and fit-for-purpose product. Evaluate how the functions in the program fulfil design criteria and identify what could be improved. Fulfil the programming requirements listed in each of the learning objectives in Lesson 2. However, it is undoubtedly beneficial for pupils to see how their micro:bit programs operate on a functioning device and recognise where physical designs and models would come together as one complete product.	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.	Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool	Lesson 1	**application (app)** **Client** **Compass** **design criteria** **Equipment** **GPS tracker** **Navigation** **Pedometer** **Smart** **Smartphone** **tablet**	Year 5: writing a design brief to fit a client's needs, including making specific component choices for functionality. Year 6: As Year 5, plus giving explanations for design choices to fit purpose and audience.
2	To write a program to include multiple functions as part of a navigation device.	Lesson 1	The micro:bit devices are optional as the children will not physically require them, but you may wish to demonstrate installing the program on the device. Installing the program onto a micro:bit. See Teacher Guidance and Knowledge on Kapow Lesson for how to programme the Micro:Bit	I can program an n, e, s and w cardinal compass. 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.	NA	Lesson 2	**Boolean** **Copy** **Duplicate** **Function** **if statement** **Loop** **Program** **Value** **variable**	Year 5: writing a program that displays an arrow to indicate cardinal compass directions with an 'on start' loading screen; suggesting where there are errors in the code and ways to fix them. Year 6: As Year 5, plus suggesting ways the code be adapted or additional code used to fit another purpose.
3	To develop a sustainable product concept.	Lesson 2	Children gain an awareness about the dangers facing Earth is growing, and we must change aspects of our lifestyle as a species. Many products are still created for a very short lifespan and become waste after use. Some products, such as plastic straws and sauce sachets, are even single-use and thrown away after just a few hours of purchase. As our landfill waste increases, more and more toxic materials and chemicals find their way onto the land, into the soil and water systems such as rivers and lakes. Waste left on the beaches or released into the ocean pollutes the sea and can cause serious harm to marine life. Plastic and metal can only be considered sustainable if recycled at the end of a product's lifespan and manufactured into new products. This is because by reusing the material, we are saving it from becoming waste and adding to landfill.	I can consider materials and their functional properties. I can understand the need for sustainability in design. I can develop a product idea through annotated sketches.	Developing an awareness of sustainable design	Lesson 3	**environmentally friendly** **Finite** **functional properties** **Infinite** **Lightweight** **Materials** **Mouldable** **Non-recyclable** **product lifecycle** **product lifespan** **Recyclable** **Sustainable** **sustainable design**	Year 5: developing a product concept that includes some annotated features based on information from a client. Year 6: As Year 5, plus explaining why and how their material choices are sustainable for the planet.

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4	To develop 3D CAD skills to produce a virtual model.	Lesson 3	Products can be 3D printed from sustainable materials and this should be considered during the design phase. There is a growing demand for sustainable materials as there is a wider range of products now using materials such as bamboo and cork. Computer Aided Design has also developed with this market.	I can place and manoeuvre 3D objects using computer-aided design. I can change the properties of or combine one or more 3D objects using computer-aided design to produce a 3D CAD model.	I can identify key industries that utilise 3D CAD modelling and explain why.	Lesson 4	**3D model** **CAD** **CGI** **Consumables** **Group** **Manoeuvre** **Opaque** **Replica** **shape properties** **Tinkercad** **Transparent** **Ungroup** **Virtual** **workplane**	Year 5: explaining key industries that use 3D CAD modelling and why; recalling and describing the name and use of key tools used in Tinkercad (CAD) software; combining more than one object to develop a finished 3D CAD model in Tinkercad. Year 6: As Year 5, plus including additional features on their product concept directly in Tinkercad.
5	To present a pitch to 'sell' the product to a specified client.	Lesson 4	When someone has a product concept or the beginning of a small product-led business, they can seek support (in the form of investment money) to develop their product further or attempt to sell it to a store, by giving a product pitch. 2D CAD designs can be used to support and present ideas.	I can explain the key functions and features of my navigation tool. I can explain my material choices and why they were chosen.	I can describe how my product fits the client's request and how it will benefit the customers.	Lesson 5	**Convince** **Feature** **Functional** **Investment** **Manufacture** **Model** **Pitch** **stock**	Year 5: completing a product pitch plan that includes key information (e.g. functions of the program and materials chosen) drawn from the rest of the project; using visual references on their pitch poster to describe their micro:bit program and 3D CAD model. Year 6: As Year 5, except planning a list of questions that a potential investor may ask about the product and give answers.