Year 5 Medium Term Planning for the Learning Challenge Curriculum

Term: Summer DT Project: Buzz Wire Game

Previous Learning	**New Knowledge /Consolidation**	**End of Project Outcome**	**Environmental Links**	**Key Inventors/People**	**Project Vocabulary**
Have created a complete circuit using Raspberry Pi components (connector cables, resistor, LED, breadboard).	Altering the layout of the circuit to make it more compact. Adding elements to create a break/switch (wire frame).	To create a challenging buzz wire game that successfully incorporates a Raspberry Pi.	Research & discuss how sustainable the materials used are and why. Investigate how "unusual" the product is and compare the cost of purchasing a store-ready game with the cost of the components used to create our own.	Joseph Swan & his use of the incandescent lightbulb as part of creating circuits with a switch. **(Part of MakeStuffNE video).**	Analyse Hazard Develop Variation Specification Combining Support Manoeuvrability Switch & Resistor Sustainable Finish Fit for purpose Innovative

Section	Lesson	Key Skills	Learning Objective & Activity
Explore **Plan**	**1**	• Consider sustainability of materials and the product life cycle. • Begin to use logical reasoning to consider why products have evolved over time. • Begin to consider products for function, cost, and sustainability. • Use CAD or 3D modelling for detailed designs. • Develop design criteria considering feedback. • Begin to investigate sustainable materials. • Explore & combine advanced materials (e.g., conductors and insulators).	**To investigate how electrical circuits are used within different types of toy** Use internet services to investigate toys that use electrical circuits and how they use this. Investigate physical examples in class (buzz wire game, operation & Bop it). **To make design decisions based on the properties of available materials.** Select what materials to use for the base, considering materials that are sustainable, easy to shape/manipulate and sturdy. Use Seesaw template to list the materials selected and justify their choices.

			Use pens to design the shape of their wire, considering how to make the "course" challenging but achievable.
Make	**2 & 3**	• Use various tools and materials to create functional products. • Reinforce and strengthen structures. • Apply finishing techniques for improved aesthetics. • Build circuits with switches.	**<u>To alter the layout of circuits to make them more compact.</u>** Using the MakeStuffNE resources, create a circuit that lights up an LED (based on the previous year). Explore different layouts and reposition the components to reduce the size of the circuit. Create a break and use connector cables to create a simple switch. **<u>To shape & combine different materials using appropriate tools.</u>** Use tools (pliers, scissors, screwdrivers, craft knives & knives) to shape materials to create a sturdy base & wire frame. Attach the circuit using appropriate materials (tin foil, tape). Test the game to ensure that the LED lights up when contact is made with the wire frame.
Evaluate	**4**	• Test and refine products to assess & improve effectiveness. • Consider functionality, durability, and aesthetics. • Collect feedback for improvement. • Begin to use their own design criteria for product assessment.	**<u>To consider if the game was fit for purpose & appearance.</u>** Use Seesaw template to consider if the game worked as intended and how effective it was (using a score out of 10). Evaluate the finish of the project and consider how the appearance could be improved (compared with similar products that are sold to consumers). Consider how sustainable the materials used were (using class discussion as a stimulus). **<u>To consider how innovative and sustainable the project was.</u>** Class discussion and mind map of how innovative the design is and how much the components would cost compared to similar products on sale.

Substantive Knowledge	Disciplinary Knowledge