Year 2 Medium Term Planning for the Learning Challenge Curriculum

Term: Autumn DT Project: Creating Toothpick Towers

Previous Learning	New Knowledge /Consolidation	End of Project Outcome	Environmental Links	Key Inventors/People	Project Vocabulary
Strengthening joins/structures using tabs and brackets (rolling toy)	To use the positioning and shape of a stock set of materials (kebab sticks, jelly sweets & marshmallows) to strengthen a structure.	To create the tallest free-standing tower with kebab skewers and regular marshmallows or jelly sweets.	N/A	Comparing the height of key monuments of the local area (The Angle of the North, Grey's Monument, Penshaw Monument) Discuss who build them, when they were built, why and how (materials - including upcycling).	Explore & Compare Plan Choose & Design Build & Construct Attach &Join Cut Trim Structure Strengthen & Stable Stiffen Change & Improve

Section	Lesson	Key Skills	Learning Objective & Activity
Explore	**1**	• Explain how a product will work in a group discussion. • Evaluate existing products based on use, materials, and how they work. • Identify several simple features that affect how products work (e.g., wheel size, position).	**To investigate famous tall structures both locally and globally.** What tall structures or landmarks are you aware of? Make a list as a class via discussion. Use PowerPoint to compare the height of famous landmarks in the North East – Angle of the North, Grey's Monument, Penshaw Monument. Discuss who built them and what was used – introduce the concept of upcycling using aeroplane wings to create The Angle of the North. Penshaw Monument (1844-1845) – John & Benjamin Green. 21m (70ft) Greys Monument (1838) – Joseph Welch, John Green, Edward Hodges Baily. 41m (133ft). The Angle of the North (1998) – Anthony Gormley. 20m (65.6ft).
Plan	**1**	• Develop ideas through talking, drawing, and ICT. • Create simple labelled diagrams. • Explore basic joining techniques.	**Consider what shapes can be used to create a secure tower.** What shapes could we use for the base. Discuss the use of strong shapes (hexagon, square, rectangle). Decide of what shape to create the base from using planning handout.

		• Understand that materials have different properties and are chosen for function.	Use toothpicks and select marshmallows & jelly sweets to join. Note: Pupils can only use either marshmallows, jelly sweets or a combination of both (design criterion). Highlight that building in the real world using a combination of materials – discuss reasons why e.g. weight, price, size.
Make	**2&3**	• Test products to check if they are a success. • Join materials using adhesives or stitching. • Use different techniques to make products stronger.	**<u>Position and create shapes with marshmallows and spaghetti to create the tallest freestanding tower.</u>** **In class,** create the tallest tower with toothpicks and marshmallows/jelly sweets. Using: - Teamwork - Communication The tower must be freestanding. Allow pupils to explore initially then stop and review (test) – Are you having any problems? Discuss the need to reinforce by either bracing the base (adding sticks across) or adding extra sticks as scaffolding. Also highlight the need to fix the base with blu-tack (use the foundations of a skyscraper as an example). Measure the height of their tower using a metre ruler *(winner to receive a 3D printed prize)*.
Evaluate	**4**	• Talk about own work, linking to what they have been asked to do (simple design criteria) • Explain how a product is successful by linking it to a design criterion.	**<u>Consider if their tower was a success/fit for purpose.</u>** Class discussion. Mirroring planning outline, pupils consider the materials they used. Did you tower stand without help? Yes/No Did you use the materials you planned on using? How tall was your completed tower? **<u>Consider what went well and what could be done differently.</u>** Create a class mind map what went well. Add text boxes in a different colour showing improvements that could be made (extra detail to be added, where appropriate, to explain how this would improve the finished tower).

Substantive Knowledge	Disciplinary Knowledge