



St John Vianney Catholic Primary School



What I am Learning in

D&T this Term...

Year 5: Structures-Frame structures

Topic Overview – Lesson Objectives

Lesson 1	Investigate and make annotated drawings of a range of portable and permanent frame structures, e.g., tents and bus shelters. Use prototypes and web-based research to extend the range, e.g., 'How does the frame structure meet users' needs and purposes?' Research Maxwell and Tuke who designed Blackpool Tower.
Lesson 2	Use a construction kit to compare the strength of square frameworks with triangular frameworks. Reinforce square frameworks using diagonals to help develop an understanding of using triangulation to add strength to structure. Make paper tubes and use tubes and masking tape or paper straws with pipe cleaners to build 3-D frameworks such as pyramids. Think about how they could be reinforced and strengthened. Practise using tools and equipment such as hand drills to construct wooden frames.
Lesson 3	Design a small-scale frame structure considering such things as the intended user and purpose. Generate innovative ideas and develop a simple design specification. Produce a detailed step-by-step plan listing tools and materials. SJV – CREATE A STRUCTURE SIMILAR TO ONE FOUND IN BLACKPOOL: The Big One, Blackpool Tower, Cenotaph, Glitter Ball or the Pier.
Lesson 4	Make a model of your idea using materials such as paper, card and paper straws. Consider such things as 'How will you make it stable?' Make your product with accuracy, selecting from and using appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.
Lesson 5	Complete the product using finishing and decorative techniques suitable for the product being designed and made.
Lesson 6	Evaluate your product by discussing how well it works in relation to the purpose and user and design criteria. Identify strengths and areas for development.

Assessment – National Curriculum

NC Statement	Maths/Literacy opportunity	Child led enquiry
<p>Design</p> <ul style="list-style-type: none"> *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. Make *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 wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. <p>Evaluate</p> <ul style="list-style-type: none"> *Investigate and analyse a range of existing products. *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. <p>Technical knowledge</p> <ul style="list-style-type: none"> *Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. *Apply their understanding of computing to program, monitor and control their products. 	<p>Recognise, describe and build simple 3-D shapes.</p> <p>Apply understanding and skill to carry out accurate measuring using standard units, i.e., cm/mm.</p> <p>Spoken Language-Ask relevant questions, formulate and express opinions, give well-structured descriptions and explanations. Build vocabulary.</p>	<p>How can my product be reinforced and strengthened?</p>
Topic Vocabulary	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, design brief, design application, prototype, annotated sketch, purpose, user, innovation, research, functional	