St Bernadette's Catholic Primary Voluntary Academy
Design Technology Medium Term Planning - UKS2 Advent 2 Cycle A Worlds of Wonder
Structures / Electrical Systems

Prior Knowledge

Year 5 Children's Prior Knowledge

EYFS	KS1	LKS2
Electrical systems not taught in this key stage	*Electrical systems not taught in this key stage*	• Use CAD • Create simple circuits

Year 6 Children's Prior Knowledge

EYFS	KS1	LKS2
Electrical systems not taught in this key stage	*Electrical systems not taught in this key stage*	• Use CAD • Create simple circuits

	Learning Objective	Activity	Key Knowledge (By the end of the lesson)		Vocabulary (Tier 3)
			Substantive	Disciplinary	
Lesson 1/2	LO: To be able to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. To design a space buggy	-Develop a simple design specification to guide their thinking. -Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. -Generate a design for a space buggy using CAD	• Know that different methods of communicating ideas have differing advantages and disadvantages	• Create clear and detailed drawing of their planned product using CAD	annotated drawings, exploded diagrams 3D Computer Aided Design (CAD) Solutions Esthetic
Lesson 3/4	LO: To be able to select from and confidently use a wider range of tools and equipment	-Make the chassis for their space buggy -Incorporate a mechanism that will enable the buggy to move	• Know how to join and strengthen joints in wood • Know how to use an	• Make a structure that will support an upper carriage and decoration • Ensure the axis, cam	Pulley Drive belt Axle Bearing

	to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. To be able to understand and use mechanical systems in their products To make a chassis incorporating an axis and wheels	forward and backward. -Add a cabin and flag	axis, cam wheel and driver to make the wheels spin	wheel and drive operate the wheels freely	
Lesson 5	LO: To be able to understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. To make a simple circuit.for the buggy	-Construct a simple circuit using electrical wires, a motor, a cell and a switch. -Use an elastic band to attach the motor to the cam wheel. - Press the switch to connect the circuit and power the Moon buggy.	• Know how to complete a simple circuit • Know that the composition of the circuit makes the driver go forward or backward	• Make a circuit that will power the buggy	Series circuit Short circuit Cell switch wires motor
Lesson 6	LO:To be able to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work To use an evaluation web to evaluate the product against the design criteria	-Evaluate, test and compare their products.	• Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Identify the effects of friction that act between moving surfaces • Recognize that some mechanisms including pulleys allow a smaller force to have a greater effect	• Test their product on different surfaces • Make it move forward • Race their product • Give areas for improvement for themselves and others based on their criteria	Esthetic Evaluate

Lesson 7	LO: To be able to apply their understanding of computing to program, monitor and control their products. To CAM software to make a space buggy move.	During their visit to the space centre the children will make a space buggy move using CAM software	• Know that coding can be used to create instructions • Know that the instructions create by coding can then be used to operate a device	• Create a simple code to move a device	Computer Aided Manufacturing