	Design and Technology	**Year 6**
	Term 2	**Topic Controllable Vehicles**

Focus Form: Construction/Food and Nutrition/Textiles

Health and Safety Awareness: cutting and sawing

National Curriculum Objectives:

Design

- 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 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

Evaluate

- 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

Technological Knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products
- understand and use electrical systems in their products
- apply their understanding of computing to programme, monitor and control their products

Techniques:

- Cutting
- Shaping
- Joining
- Finishing

Context:

- Home
- School
- Gardens
- Playgrounds
- Community
- Industry
- Culture
- Enterprise

Prior Learning:

* use selected tools/equipment with good level of precision
* produce suitable lists of tools, equipment/materials needed
*select appropriate materials, fit for purpose; explain choices, considering functionality

Vocabulary:

Circuit, series and parallel circuits, short circuit, switch, speed, spindle, pulley, control, secure connections, motor, axle

* create and follow detailed step-by-step plan * explain how product will appeal to an audience * mainly accurately measure, mark out, cut and shape materials/components *mainly accurately assemble, join and combine materials/components * mainly accurately apply a range of finishing techniques * use techniques that involve a small number of steps * begin to be resourceful with practical problems	
Knowledge: (including evaluating products, investigating designing, making, reviewing & technical knowledge e.g. mechanisms and structures) How to control the speed and direction of movement of a vehicle using pulleys. How a vehicle moves using wheels and axles. How to attach axles to a chassis.	**Skills:** (including evaluating, investigating, designing, making, reviewing & technical knowledge e.g. mechanisms and structures) How to use electrical components to control a vehicle How to attach axles to a chassis.
Existing products/designers:	**End Point:** **To create an electrically controllable vehicle**
Cross Curricular Links:	**Oracy:**

Wider Reading	**Enrichment**

Lesson	Focus	Key Question
1	Evaluate	What is an electrical vehicle and how does it work?
2	Technical skills/ knowledge	How do pulleys and belts function?
3	Technical skills/ knowledge	How does a vehicle move using wheels and axles?
4	Design	How do I design an electrical vehicle?
5	Make	Following my plan, how can I create my own working electrical vehicle?
6	Review	What is good about my electrical vehicle and how could I improve it?