Design and make a Glider

Pupil Name	
Key Stage 2 Learning Points (from the National Curriculum 2014) Specific to this project.	
Sc4/1.1	asking relevant questions and using different types of scientific enquiries to answer them
Sc4/1.2	setting up simple practical enquiries, comparative and fair tests
Sc4/1.3	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment
Sc4/1.4	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
Sc4/1.5	recording findings using simple scientific language, drawings, labelled diagrams
Sc4/1.6	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
Sc4/1.7	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
Sc4/1.8	identifying differences, similarities or changes related to simple scientific ideas and processes
Sc5/4.2a	explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Inc. name the 4 forces of flight(lift and thrust create flight-drag and weight prevent flight)
Sc5/4.2b	identify the effects of air resistance, water resistance and friction, that act between moving surfaces
Sc6/1.4	using test results to make predictions to set up further comparative and fair tests
Sc6/1.5	using simple models to describe scientific ideas
Sc6/1.6	reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations
Sc6/1.7	identifying scientific evidence that has been used to support or refute ideas or arguments.
DT2/1.1a	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
DT2/1.1b	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
DT2/1.2a	select from and use a wider range of tools and equipment to perform practical tasks accurately
DT2/1.2b	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
DT2/1.3b	evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
DT2/1.4c	understand and use electrical systems in their products
DT2/1.1a	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
DT2/1.1b	generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design(this project would lend itself to using Purple Mash '2Design' software)
DT2/1.2a	select from and use a wider range of tools and equipment to perform practical tasks accurately
DT2/1.3b	evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Evidence for meeting these strands to come from: **Teacher observations and questioning pupils during project.** **Pupil design sheet.** **Pupils Self-Assessment on evaluation sheet.** **Peer Assessment on evaluation sheet.** **Photographs taken during making / testing process.**

Key Stage 2 Learning Points (from the National Curriculum 2014) Generic to all Imagineering Projects

Science: Health and Safety - Pupils should be taught to:
• recognize that there are hazards in materials and physical processes, and assess risks and take action to reduce risks to themselves and others
Design and Technology: Knowledge, skills and understanding Working with tools, equipment, materials and components to make quality products:
Pupils should be taught to: • select tools, techniques and materials for making their product from a range suggested by the teacher • suggest alternative ways of making their product, if first attempts fail • explore the sensory qualities of materials and how to use materials and processes • measure, cut and shape a range of materials
Evaluating processes and products: Pupils should be taught to: • reflect on the progress of their work as they design and make, identifying ways they could improve their products • carry out appropriate tests before making any improvements
Design and Technology: Breadth of study **During the key stage, pupils should be taught the knowledge, skills and understanding through:** • focused practical tasks that develop a range of techniques, skills, processes and knowledge • design and make assignments using a range of materials, including electrical and mechanical components

Pupil Project Record

Name	Title of Project	Date
Before you begin your project… **Analyse pictures / models of aeroplanes. What do you notice?** **Draw a picture of what you think your glider will look like.** **Who are you making it for?** **What safety rules will you need to follow? Why?**		
When you have finished your project… **Draw a diagram of your project. Label the parts.** **(You could include a photo.)** **Show how different forces act on the wing.**		
What do you think of your finished project? **What happened during testing?** **How could you make it fly further?**		
What would you change/improve if you did it again?		
What skills did you use to build your glider?		
What does your partner think?		