Unit 2

Name:

Date:

2-5: Glider Design

DISCOVER

Discover: Glider Design

Question: How can I construct a glider that moves through the air?

Instructions

Part A
Your task in this assignment is to design and build a glider.

Construct the entries for your lab notebook below explaining the designing and building process for your glider.

- Include between 5-8 entries. Record any changes you make to your design while building or any problems you may have encountered.

- Include images or sketches that show my design and how the model was built.

Glider Design Guide

Consider the following questions when designing your glider.

- What kind of material will you use? (balsa wood, paper, Styrofoam, etc.)
- How big will your glider be?
- What shape will your aircraft's nose be?
- Will you add an item to the nose to balance the glider?
- What shape and how large will the wings be?
- Will you be adding other control surfaces? (tail, rudder, elevators, flaps, etc.)
- Will your glider be too heavy to fly?

- Will it be sturdy enough to fly?
- Are the wings shaped and positioned well to produce lift?

Part B

You will conduct a variety of tests to modify the design to make the glider

- go further
- stay up longer
- fly in a loop
- turn in a left or right direction

- Include between 5-8 written entries describing your tests and the results. As part of your entries, mark a starting point for your glider on the ground with a piece of tape. From that starting point, throw your glider. Use a measuring tape to measure how far your glider went, and record it. Use a clock to time how long your glider was in the air. Make adjustments to increase both the distance and the flight time. Record what adjustments you made.
- Include images or videos. Keep a record of improvements to your glider design and record your tests.

Make sure your teacher can open the video file you send. You may, for example, use Animoto to make a video demonstrating your glider design.

Part C Conclusions

Building a glider is not enough; you must demonstrate your knowledge of how your glider is able actually to fly!

In Part C include explanations of

- how air helps your glider to fly (Bernoulli's Principle)
- the forces of flight acting on your glider
- the various parts of your glider and what they do

Be sure to read carefully the criteria and Glider Design Rubric first because they will help you know what is expected of you.

Glider Rubric

	Excellent 5	**Proficient 4**	**Satisfactory 3**	**Limited 2**
Part A: Lab Notebook Entries	• I provided an *innovative* glider design *with*	• I provided a *logical* glider design *with relevant*	• I provided a *clear* glider design *with basic*	• I provided a *impractical* glider design *with*

(Design) /5	*insightful* modifications.	modifications.	modifications.	*incomplete or inaccurate* modifications.
Part B: Glider Tests /5	• I tested my glider design *accurately* and *rigorously.* • I made *insightful* modifications.	• I tested my glider design *accurately* and *logically.* • I made *relevant* modifications.	• I tested my glider design *basically* and *generally.* • I made *simple* modifications.	• I tested my glider design *inaccurately* and *unclearly.* • I made *incomplete* modification.
Part C Explanations /5	I provided insightful explanations of • how air helps your glider fly • how the forces of flight act on your glider • the various parts of the glider and what they do	I provided insightful explanations of • how air helps your glider fly • how the forces of flight act on your glider • the various parts of the glider and what they do	I provided insightful explanations of • how air helps your glider fly • how the forces of flight act on your glider • the various parts of the glider and what they do	I provided insightful explanations of • how air helps your glider fly • how the forces of flight act on your glider • the various parts of the glider and what they do
Presentation /5	• I expressed and organized my presentation in an *engaging* and *accurate* way.	• I expressed and organized my presentation in a *logical* and *mostly accurate* way.	• I expressed and organized my presentation in an *adequate* and *somewhat accurate* way.	• I expressed and organized my presentation in a *confusing* and/or *inaccurate* way.

Part A

Lab Notebook Entries (5-8 entries)

Part B

Glider Test Log

Test Type and #	Improvements to Design	Measurement (Distance (m) or Time)
Distance #1		
Distance #2		
Time #1		
Time #2		
Loop #1		
Loop #2		
Right or Left #1		
Right or Left #2		

Part C

1. How does air help your glider to fly (Bernoulli's Principle)?

2. How do the forces of flight acting on your glider?

3. What are five parts of your glider that help it fly. How do these parts help it fly?

Total: /20 marks

Save Your File

Save your Table to your Air Notebook folder. Name your file with your name (jsmith) in this format: (yournamehere)sc6-2-5-glider. Submit your completed assessment to the submission folder.