

Balsa Glider Rubric

Standards	Lesson Objectives	Advanced 3 Points	Intermediate 2 Points	Beginner 1 Point	Points
<i>MS-ETS1-2</i> <i>ITEE-12:D, E & F</i> <i>FAB-DESIGN.1</i> <i>FAB-PROGRAMMING.1</i> <i>FAB-MODELING.1&2</i>	Using Computer Aided Design Software (CAD)	Follows along with instruction, is able to use tools taught, and anticipate next steps. Creates a design with detailed thought of how it will impact flight. Is able to learn more tools than those taught and can redesign without assistance.	Follows along with instruction and is able to use tools taught. Creates a design similar to instructors with some thought of the impacts on flight. Is able to redesign using the same steps taught with little to no assistance.	Completes steps with minimal design thought and needs instructors direct guidance for tool use. Needs assistance with redesign.	
<i>MS-ETS1-2</i> <i>ITEE- 8:C & D; 9:C, D & E</i> <i>FAB-DESIGN.1</i> <i>FAB-MODELING.1&2</i>	Understanding the Engineering Design Process	Creates multiple designs based on competing solutions and tests flight. Systematically determines the best designed pieces and consolidates them into a final glider with the furthest flight distance.	Creates and tests one or more entirely new designs.	Changes one aspect of the design and tests a second time (ie: only changes wings)	
<i>MS-ETS1-4</i> <i>3-5-ETS1-3</i> <i>ITEE-13: F, G & I</i>	Data Collection	Develops a model to control accuracy. Stands behind the line in the exact spot, controls thrust by throwing each glider 3 times to find the average distance, makes exact measurements and records each flight.	Uses some methods to control accuracy. Stands behind the line, controls thrust to best ability, makes measurements and records them.	Does not use accuracy. Not controlling thrust, not standing behind the line, and gauges distance by eye alone	
<i>MS-ETS1-3</i> <i>3-5-ETS1-2</i> <i>ITEE-9:F, G & H; 10:F, G & H</i>	Analysis	Calculates the average distance of their flight tests. Analyzes their data to determine the similarities and differences among several different designs. Generates and compares multiple solutions to identify the best characteristics of each glider. Then combines these characteristics into a new solution and evaluates its success to find the final design.	Calculates the distance of their flight tests. Analyzes their data to determine which glider went the furthest. Generates and compares several solutions to identify their best design.	Makes a rough estimate of the distance difference between original flight and second flight with one design change.	
<i>3-5-ETS1-1</i>	Communication	Can communicate their findings based on the four forces of flight (weight, lift, thrust, drag) and how each force impacted their final design. Understands the constraints on their design (ie. materials - unable to bend the wood to assist flight).	Can communicate their findings based on their understanding of the four forces of flight (weight, lift, thrust, drag) and how it impacts their designs but does not recognize the constraints on their design due to the material used, amount of time, ect.	Can communicate how one or two of the forces of flight (weight, lift, thrust, drag) impacted their design.	
Point System Key:		11 - 15 Points	6 - 10 Points	1 - 5 Points	Total: