Engineering Design Rubric

Team Name: _____ Members: _____ Date: _____

Category	Beginning	Developing	Mastery
Developing a Design Solution	A model/design solution that releases energy using a chemical reaction is **not well developed**—many materials and assembly instructions are **missing**. The substances used in the chemical reaction are identified **without amounts or reasoning**. The transfer of energy is **not clearly shown** between components of the model/design solution.	A model/design solution that releases energy using a chemical reaction is **partially** developed—**some** materials or assembly instructions are missing. The substances and amounts used in the chemical reaction are identified **without reasoning**. The transfer of energy is shown between components of the model/design solution **without particle-level detail**.	A model/design solution that releases energy using a chemical reaction is **fully** developed—**all** materials used in the design and assembly instructions are included. The substances and amounts used in the chemical reaction are identified, **including reasoning for those amounts**. The transfer of energy is **shown at the particle level** between components of the model/design solution.
Testing Design Solutions	The design solution was **not tested**; OR the design solution was tested, but the tests were **not connected** to the criteria and constraints. Prototype was **not ready in time** to complete testing.	There is evidence that the design solution was tested to see if it met **some** criteria and constraints. Prototype was ready to complete testing.	There is evidence that the design solution was tested to see if it met **all** criteria and constraints. Prototype was ready to complete testing.
Evaluating Design Solutions	The design solution was **not** evaluated using a Design Testing Matrix.	The design solution was evaluated using a Design Testing Matrix that includes **some** criteria and constraints OR **non-specific** criteria and constraints.	The design solution was evaluated using a Design Testing Matrix that included **all specific** criteria and constraints.
Combining Parts of Design Solutions	The characteristics of the design that performed the best in each test are **not identified**. A new design solution is created; **but there is no evidence that the new solution is based on combining parts of previous design solutions**, OR a new design solution is **not** created.	The characteristics of the design that performed the best in each test are identified **but are not based on data recorded in the Design Matrix comparing multiple designs**. Parts of different design solutions **are combined** to create a new and improved design solution.	The characteristics of the design that performed the best in each test are identified **based on data recorded in the Design Matrix comparing multiple designs**. Parts of different design solutions **are combined based on evidence** to create a new and improved design solution.

Optimizing Design Solutions	The design solution has **not been improved based on prior test results**. Tests have **not** been repeated, **OR tests are not similar** to prior testing. **Neither** relevant stakeholders **nor** cascading consequences have been considered in order to optimize the design solution.	The design solution has been improved based on prior test results **without evidence of those decisions clearly stated/shown**. **Some** similar tests have been repeated in order to compare designs **OR** continue improving the proposed solution. Relevant stakeholders **OR** cascading consequences have been considered in order to optimize the design solution.	The design solution has been improved based on prior test results, and evidence of those decisions is clearly stated/shown. The same tests have been repeated in order to compare designs and continue improving the proposed solution. Relevant stakeholders **AND** cascading consequences have been considered in order to optimize the design solution.