# BIOMIMICRY
## YOUTH DESIGN CHALLENGE

# YDC Project Rubric

Project Name: _____

Grade Band: Middle School or High School (circle one)

Grade Level: _____ Other _____ (list any combination classes or HS course here)

| Component | Superior Level (4) | Proficient Level (3) | Progressing Level (2) | Basic Level (1) | Eval 1 | Eval 2 | Eval 3 | Total |
|---|---|---|---|---|---|---|---|---|
| **VIDEO PITCH**<br><br>(Communicate - Empathize and Present) | Video includes evidence of an empathy interview or related research AND clearly explains the project (problem, process of biomimicry, solution). | Project video show evidence of an empathy interview/research OR clearly explains the project (problem, process of biomimicry, solution). | Project video seems to show gaps in knowledge or understanding. Excludes pieces of the learning experience and/or solution offered. | Project video is confusing or unrelated to the project. | | | | |
| **EXPLORING THE PROBLEM**<br><br>(Project Abstract, Slide 3) | All portions of the problem are listed:<br><br>1. SDG addressed;<br>2. Biological models used as mentors;<br>3. Criteria and Constraints. | Two of three portions of the problem are listed:<br><br>1. SDG addressed<br>2. Biological models used as mentors;<br>3. Criteria and Constraints. | One of three portions of the problem is listed:<br><br>1. SDG addressed;<br>2. Biological models used as mentors;<br>3. Criteria and Constraints. | The problem addressed is not clear. | | | | |
| **DEFINING THE PROBLEM**<br><br>(Innovate, Slide 4) | Problem is defined with a proposed solution that defines all 3 requirements:<br>1. Who needs the design;<br>2. What is needed in the design;<br>3. Why the design is needed | Problem is defined listing 2 of the 3 requirements:<br><br>1. Who needs the design;<br>2. What is needed in the design;<br>3. Why the design is needed | Problem is defined listing 1 of the 3 requirements:<br>1. Who needs the design;<br>2. What is needed in the design;<br>3. Why the design is needed | Problem is not defined and none of the requirements are met. | | | | |

| Component | Superior Level (4) | Proficient Level (3) | Progressing Level (2) | Basic Level (1) | Eval 1 | Eval 2 | Eval 3 | Total |
|---|---|---|---|---|---|---|---|---|
| **RESEARCHING BIOLOGICAL MODELS**<br><br>(Inspiration/ Match, Slide 5) | Demonstrates through research of multiple organisms, presents biological models concisely and offers sketches/ diagrams to explain how the strategy/mechanism works. | Demonstrates research of multiple organisms and successfully presents biological models that explain how the strategy/ mechanisms works. | Demonstrates research of one or more organism, presents biological model(s) that needs improvement to better explain how the strategy/ mechanism works. | Shares research of one or more organism but does not attempt to demonstrate how the strategy/ mechanism works. | | | | |
| **DEVELOPING AND USING MODELS**<br><br>(Iterations/ Process, Slides 6 & 7) | Translates biological model(s) into Abstracted Design Strategies, AND Uses models and simulations to brainstorm possible solutions to a problem with data to justify design choices, AND models are annotated to show strengths and limitation of the designs. | Translates biological model(s) into Abstracted Design Strategies effectively, AND shares ideas for brainstorming possible solutions to a problem with data to justify design choices, AND provides models that show the strength and limitations of the designs. | Attempts to translate biological model(s) into Abstracted Design Strategies, AND shares ideas for brainstorming possible solutions to a problem with data to justify design choices OR models are attempted to diagram potential solutions. | Attempts to translate biological model(s) into Abstracted Design Strategies are confusing or inaccurate; ideas/ models could be present but not clearly annotated/explained. | | | | |
| **ELEMENTS OF BIOMIMICRY**<br><br>(Final Project Image, Slide 8) | Uses all 3 elements of biomimicry:<br><br>1. Ethos—care for life;<br>2. (Re)connect—field or AskNature research;<br>3. Emulate—mimics nature. | Uses 2 elements of biomimicry:<br><br>1. Ethos—care for life;<br>2. (Re)connect—field or AskNature research;<br>3. Emulate—mimics nature. | Uses 1 element of biomimicry:<br><br>1. Ethos—care for life;<br>2. (Re)connect—field or AskNature research;<br>3. Emulate—mimics nature. | Uses biomorphism or bioutilization | | | | |
| | | | | **TOTALS** | | | | |

**Judging Comments:**

General comments:

Did the student/s understand how to analyze the problem and think about it functionally, making a credible analogy to a biological strategy in nature?