### Activity 3 Worksheet

Biomimicry: linking form and function to evolutionary and ecological principles

You will be assigned a design challenge. To complete the challenge, use the following steps to complete the table below.

1. *Identify function*: What does an organism utilize or do well? For example, move, store water, catch food, or capture rainwater. You can use the [Biomimicry Taxonomy](http://static.biomimicry.org/asknature/biomimicry_taxonomy-v6.0.pdf) to help.
2. “Biologize” the question

* What are nature’s best ways of solving the function?
* Write a question for your function.
* Examples: how do organisms move; how would nature store water; how do organisms catch food; how does nature capture rainwater?

1. Find nature’s best practices

* Use observation skills, research, field trips, technology like microscopes or magnifying glasses, etc.
* Take notes on how the organism(s) observed accomplishes the goal of the function chosen and answer the question from part 2.

1. Generate product ideas

* Using what you have learned from the investigations, what new product ideas can you think of?
* Draw/design your ideas – use the materials provided or permitted by your instructor.
* Explain how your product addresses the following criteria:
* *A. Sustainable*
* *B. Performance*
* *C. Energy efficiency*
* *D. Production costs (cut material costs)*
* *E. Redefine and eliminate waste*

Your product idea will be evaluated by others (either your classmates or guest judges) based on the five criteria from part 4. Be prepared to share your idea with others.

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| **1. Identify the function** | | **2. Biologize the question** | |
| **3. Find nature’s best practices** | | | |
| Organism 1 | Form | | Function |
| Organism 2 | Form | | Function |
| Organism 3 | Form | | Function |
| Organism 4 | Form | | Function |
| **4. Generate product ideas** | | | |
| **Describe/sketch** | | **Sustainability** | |
| **Performance** | |
| **Energy efficiency** | |
| **Cost of production** | |
| **Redefine and eliminate waste** | |