

BIOMIMICRY HOMEWORK ASSIGNMENT #2

An Extension of In-Class Activity #3

Animal Contributions

Task 1. Identify an animal that you are going to use for inspiration throughout this activity. Find a photo of this animal and copy the image into a Word document. Note that you can NOT use a koala bear, fox, angel fish, giraffe, hippo or shark since these have likely been used by you or your classmates in other related activities.

Task 2. Spend 5 – 10 minutes researching your animal. Focus on learning what unique features, functions, and skills your animal has. You might specifically study how your animal eats, moves, cares for its young, protects itself, etc. Summarize what you find into a long, bulleted list in the Word document, underneath the photo of your animal.

Task 3. Next, in your Word document, make a table with two columns and six rows. Label the first column “Animal Features”. Choose at least 5 of the features, functions, and skills that your animal possesses (from the bullets you created in Task 2) and list these in column 1, one per table cell. Label the second row “Similar Human Design”. Then for each animal feature/function/skill in column 1, list something that is man-made that is functionally similar. For example, if an elephant is able to pick up large objects on the ground with its trunk and lift it high into the air; you might list for similar human design “A pulley system; Pneumatics; Magnetic arm; etc.” You only have to list one man-made object per animal feature, but you are welcome to list more than one (which might be helpful later in the assignment).

Task 4. Now work backward. Thinking about everything you have written, and what you have to work with, generate a real-world problem definition (design challenge) that has nothing to do with animals but that will require the solution to use at least two of the animal features/related manmade “tools” you have listed. Be creative and have fun with this. See previous design challenge prompts we have used in class if you need examples. Write out the problem definition in the Word document, under the work you have already done.

As an example thinking about the elephant trunk and pulley system in a more simplified case that uses only one feature/tool and not two.....you might write *“My neighbor bought a brand new van for her family vacation. She bought a roof-top carrier to place on top of the van to carry additional luggage. She packed it while it was on the ground and is now not tall enough or strong enough to lift it onto the van’s rooftop. She doesn’t have the help of any other adults but she does have a garage full of odds and ends. How can she safely get the packed carrier on to the top of the van?”*

Task 5. Finally, in your Word document, summarize using a few sentences one possible solution you have in mind to the problem definition/design challenge you wrote out during Part 4. Add a few additional sentences to compare the effectiveness of your solution and the animal-related one that you originally started with. (If you had an elephant's trunk, for example, would that have been the hands down best approach? Why or why not?).

DELIVERABLES

Submit the completed Word document on Isidore

Grading for these deliverables is out of a total of 50 points and will be based on completion of the tasks and overall quality and thoughtfulness of your deliverable. Individuals earning the highest grades on this assignment will have demonstrated an outstanding effort and thoughtfulness on this assignment, which will include in-depth and thorough written responses and reflections that are relevant to the assignment's focus. Highest scoring papers will look and read professionally, being nicely organized and well edited.