Name: Date: Period:

Biology: The Future of Evolution

Background: Evolution is an ongoing process. Because our lives are short when compared to evolutionary time, it is difficult for us to observe evolution in action. We do know, based on DNA and fossil evidence, that **speciation** events are greatest following some major change in the environment. While one species may disappear, another species may undergo **adaptive radiation** ending up with many new species. Of course, in order to survive a major change in the environment, enough variation must be present within the species so that at least a few can reproduce and leave offspring. So, if evolution has not stopped, and we could fast forward a million years into the future, what would life on earth look like? How would it look if we removed human influence?

Part 1: Design your organism

1. Select a present day living organism (plant, animal, fungus, algae, etc.)

2. Research:
   - Habitat/ geographic location
   - Life history (how it reproduces)
   - What it eats
   - What eats it
   - Present day variations that help it survive in its environment.

3. How will the organism have changed a million years from now?
   - Habitat/ geographic location
   - Life history (how it reproduces)
   - What it eats
   - What eats it
   - Variations that help it survive in its environment

4. What mutations occurred between the present day organism and the future organism? *Remember, a mutation occurs BEFORE a change in the environment, and a mutation modifies and existing structure!*

   Mutation 1:

   Mutation 2:

   Mutation 3:

   Mutation 4:

   Mutation 5:

5. For each mutation you describe, select a change in environment that would have favored individuals with that mutation, allowing them to leave more offspring.

   Change favoring Mutation 1:

   Change favoring Mutation 2:

   Change favoring Mutation 3:

   Change favoring Mutation 4:

   Change favoring Mutation 5:

Part 2: Create a model

1. The model must be three dimensional and easily suspended in the air.
2. Avoid using materials that decompose or break down (like food or hair gel)
3. All visible mutations described above must be present.
4. A 5X8" identification card must be attached
   - •List the answers to question #3 on one side.
   - • Draw a cladogram on the other side. The cladogram should be an evolutionary map from the present day organism to the future organism, branching where mutations create a new species.
5. Be sure to turn in this worksheet and a self-graded rubric with your future organism model.

PROJECT RUBRIC

Project Partners: _____

•The present day organism has been appropriately researched:	_____ / _____
•The future organism has been well described	_____ / _____
• The mutations selected modify existing structures	_____ / _____
•5 changes in the environment correspond with each mutation:	_____ / _____
• The model is well constructed	_____ / _____
•5 mutations are present on the model	_____ / _____
• Information card is complete	_____ / _____
• Cladogram is complete	_____ / _____
• Creativity	_____ / _____
TOTAL	_____ / _____

Comments: