Name _____ Date _____ Period _____

Lab: Build-a-Beast

UNIT 5: EVOLUTION

Background: This activity demonstrates an important part of evolution: ***adaptation***. Adaptation is "an alteration or adjustment in structure or habits, often hereditary, by which a species or individual improves its condition in relationship to its environment." In order to survive in an environment, an animal needs to ***adapt***, to develop traits that fit it to where it lives. For example, mountain goats have padded hooves to grip the rocks on which they climb, giraffes are tall to reach the leaves of tall trees, and frogs have long, sticky tongues to catch insects to eat, and are colored brown or green to match their environments so that predators do not notice them. In fact, nearly everything about an animal is an adaptation of one kind or another. Think of a trait that an animal has, and then think of how that trait helps it to survive or reproduce in its environment.

Plants also adapt to their environments in order to survive. For example, cacti are able to store water because they live in dry places, and they have spines to discourage animals from eating them. The flowers of flowering plants are an adaptation for attracting bees and butterflies, which enable the plant to reproduce.

This activity is about creating animals with useful adaptations. The animal's environment is given, because that is how Darwin's theory of evolution and adaptation work: the individual organisms that are best adapted to their particular environments survive, so the adaptations gradually appear in more and more of the population. Different adaptations are helpful for different environments: For a rabbit living in the Arctic, white fur would be helpful to avoid being seen by predators. For a rabbit living in the woods, being white would make it more conspicuous, but being brown would be helpful.

Procedure:

1. To "build a beast," first roll a die for each category to determine the conditions under which the animal lives.
2. Then make up, write about, and draw an animal which has adaptations to be able to live well in that kind of environment.
3. Answer Conclusion questions

A) WHERE DOES IT LIVE?

1 - mountains
2 - flatlands
3 - rocky, harsh
4 - small island
5 - near a volcano
6 - in a cave

B) HOW MUCH WATER IS THERE?
1 - almost none; dry and barren
2 - water part of the year, drought the rest
3 - lots of precipitation all year
4 - near a coastline
5 - in a swamp
6 - in the ocean

C) WHAT IS THE CLIMATE/WEATHER LIKE?
1 - hot and humid
2 - hot and dry
3 - moderate
4 - cold, rainy, and windy
5 - seasons change from hot to cold
6 - sub-zero temperatures

D) WHAT DOES IT EAT?
1 - leaves from tall plants
2 - fungus growing under rocks
3 - berries, plants, and small animals
4 - water animals
5 - swift running deer-like animals
6 - flying insects

E) WHAT EATS IT?
1 - stompsuckers squash it flat
2 - vampire butterflies land on it and suck it dry
3 - buzzbugs lay eggs that burrow into its skin
4 - web devils set gooey traps to catch it
5 - ratrax packs are wolf-like and chase it
6 - megaworms leap out of the sand and swallow it

Conclusion: (answer on separate sheet of paper. Use complete sentences to answer)

1. Define ***adaptation.***
2. Define ***natural selection.***
3. What does the term **fitness** mean in regards to natural selection?
4. What does it mean to become ***extinct***?
5. Which of the ***adaptations*** for your organism do you think were the <u>most important</u> for survival? The <u>least important</u>?
6. What type of ***variation*** exists within your population?
7. Why is ***variety*** within a population so important for the survival of your organism?
8. Name at least three changes in the ***environment*** that could cause your organism to become ***endangered***.
9. Name at least two changes in the ***environment*** that you think may cause your organism to become ***extinct***.
10. What single change in the ***environment*** do you think would affect your organism the most?