Name _____ Date _____ Period _____ Score out of 25 _____

Corrected by _____

Crazy Adaptations Lab

How does the environment influence traits?

When Darwin examined the finches he saw on the Galapagos Islands, he noticed differences in the appearance of different species. He noticed that the shape of finch beaks varied according to their primary food source. In this investigation, you will build a creature that is adapted to its environment and describe its adaptations. Then you will play the game of Adaptation Survivor.

Determining your environment

First, you will determine the environment in which your creature will live. Roll the dice for each environmental variable and record your results in **Table 1.**

Materials

Crazy Traits game
Die

Table 1: Environmental data

Environmental variable	Possibilities with roll of the dice	Outcome
Surface color	1, 2 = Blue soil 3,4 = Purple soil 5,6 = Red soil	1.
Food source	1, 2 = chocolate candies 3, 4 = jumbo marshmallows 5, 6 = milk shake	2.
Predator	1,2 = *Hawkus giganticus* (flies over the land and snatches prey by their antennae) 3,4 = *Frightus catus* (afraid of water but can run very fast) 5,6 = *Microtus pesticus* (a blind army ant that crawls on the ground and attacks in large groups but cannot fly)	3.
Topography	1,2 = flat 3,4 = mountainous 5,6 = swampy	4.

Stop and think (Use your PowerPoint Notes or the textbook to help you.)

5. What is an adaptation?

_____

_____

6. Where do adaptations come from?

_____

_____

What kinds of adaptations would your creature need in order to survive in the environment in Table 1?

7. What color fur or skin and why?

   _____

   _____

8. What would it need or be able to do to get food?

   _____

   _____

9. What enemies does it have and what adaptations would help it survive?

   _____

   _____

10. What adaptations would your creature need for the topography in which it lives?

    _____

    _____

Choosing your traits

- ☐ Based on the environment determined by rolling dice, think about the adaptations your creature will need to survive. Choose the traits for your creature from **Table 2** below.

Table 2: Possible genotypes and phenotypes of traits

Trait	Genotypes and phenotypes
1. Skin color	***TT*** - red ***Tt*** - purple ***tt*** - blue
2. Eye color	***TT*** - red ***Tt*** - one red and one green ***tt*** - green
3. Eyebrows	***TT*** - unibrow ***Tt*** - unibrow ***tt*** - separate
4. Beak	***TT*** - trumpet ***Tt*** - trumpet ***tt*** - crusher
5. Ears	***TT*** - elephant ***Tt*** - elephant ***tt*** - mouse
6. Leg	***TT*** - short ***Tt*** - short ***tt*** - long
7. Foot	***TT*** - webbed ***Tt*** - webbed ***tt*** - talons
8. Arms	***TT*** - long ***Tt*** - long ***tt*** - short
9. Hands	***TT*** - paws ***Tt*** - paws ***tt*** - claws
10. Antenna	***TT*** - long ***Tt*** - long ***tt*** - short
11. Antenna shape	***TT*** - knob ***Tt*** - knob ***tt*** - star
12. Tail	***TT*** - long ***Tt*** - short ***tt*** - none
13. Wings	***TT*** - no wings ***Tt*** - no wings ***tt*** - wings

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11. Complete **Table 3** by filling in the genotype and phenotype for each trait you choose. Tell whether each trait is an adaptation or not. If a trait is an adaptation, explain how it will help your creature survive in their environment. Record your answers in the last column of **Table 3.**

Table 3: Genotype and phenotype of your creature (6 points)

Trait	Genotype	Phenotype	Adaptation? If yes, explain
1. Skin color			
2. Eye color			
3. Eyebrows			
4. Beak			
5. Ears			
6. Leg			
7. Foot			
8. Arms			
9. Hands			
10. Antenna			
11. Antenna shape			
12. Tail			
13. Wings			

Analyzing the data

12. Build your creature and then draw it here using colored pencils. Outline the shapes that make up your creature in its same color – you do not need to fill in the color.

b. Using the table below, describe the adaptations your creature has for surviving in its environment. Be creative! **(2 points each)**

Environment	Adaptation
Type of Soil:	13.
Food:	14.
Predator:	15.
Topography:	16.