Biology

Name: _____ Date: _____ Period: _____

Natural Selection - Peppered Moth Interactive

Directions: Go to the Peppered Moth Interactive page on the internet: peppermoths.weebly.com or use the "Peppered Moth" link on www.biologybynapier.com

Answer the following questions using the information provided, you need to <u>read</u>.

1. Where are Peppered moths found?

2. How do Peppered moths avoid predators?

3. What is the difference between Carbonia and Insularia Peppered moths?

4. How did the Industrial Revolution affect English forest?

5. Complete three trials of each Birdseye View simulation and record your data. Remember you are a PREDATOR! You eat what is easy to see – ***do not try to "beat" the game by eating the ones that are harder to see***. You will get the wrong answers if you do so. **Eat the moths that are the easiest to see – that's what the bird would do.**

Light forest simulation

	Trial 1	Trial 2	Trial 3	Average % of moths left (add all 3 trials and divide by 3)
% light moths left				
% dark moths left				

Dark forest simulation

	Trial 1	Trial 2	Trial 3	Average % of moths left
% light moths left				
% dark moths left				

1. **Conclusion**: Describe your results and hypothesize why they came out the way they did.
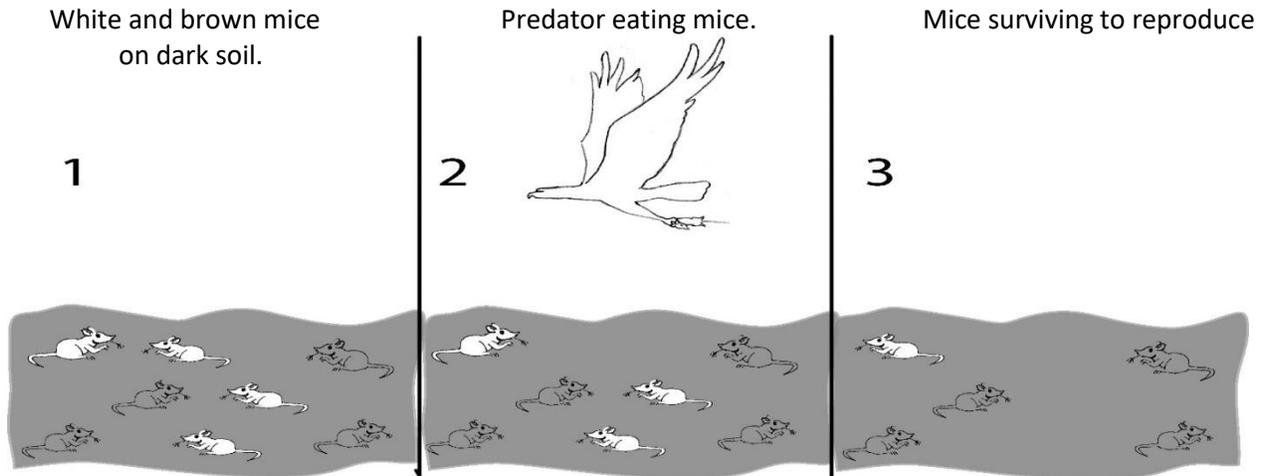
    Results (what happened?) –

    Hypothesis (why did you get these results?)–

2. Explain how the population of moths evolve over time due to natural selection. Include why the change occurred, which adaptation led to survival and how did this adaptation help them survive. Use complete sentences.

Natural Selection - Mice Living in a Desert

1. What is happening in these figures? Describe how the population of mice is different in figure 3 compared to figure 1. Explain what happened to cause this difference.

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_____

| White and brown mice on dark soil. | Predator eating mice. | Mice surviving to reproduce |

An **adaptation** is any characteristic that increases **fitness**, which is defined as the ability to survive and reproduce. Fitness is NOT how strong or fast something is. It's how well something can live to reproduce.

2. What is "**fitness**"?

3. For the mice in the figure, what was an **adaptation** that increased fitness?

4. The trait that aids in the survival of an organism will be naturally selected for. What trait will be naturally selected for in this scenario?

5. Suppose a population had three female mice with the following characteristics.

Characteristics of each female mouse	Color of Fur		
	White	Gray	Black
Running speed	5 cm/sec.	6 cm/sec.	8 cm/sec.
# offspring produced by each female	5	19	8
Age at death	3 months	6 months	3 months

6. According to the definition of fitness above, which of these mice would be the fittest (which survives the longest)?

7. Explain why this mouse would be the fittest. _____

_____

8. A characteristic which is influenced by genes and passed from parents to offspring is called a **heritable trait.** Is fur color a heritable trait in mice?

9. If dark fur makes the mice better able to survive, will there be more dark furred mice in future generations?