NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **3**

DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PER \_\_\_\_\_\_\_

ROCK POCKET MOUSE POPULATIONS

INTRODUCTION:

A typical rock pocket mouse is about 170 millimeters long from its nose to the end of its tail, shorter than an average pencil. This tiny mouse weighs about 15 grams. Rock Pocket Mice, however, have had an enormous impact on science. What’s so special about them? You can find populations of Rock Pocket Mice all over the Sonoran Desert in the southwestern United States. There are two common varieties—a light-colored mouse and a dark-colored mouse. There are also two major colors of ground, or surface materials, that make up the desert floor. Most of the landscape consists of light-colored sand and rock, but patches of dark volcanic rocks that formed from cooling lava flows are found through the landscape.

Procedure:

The pictures (1 through 4 laminated pages) represent snapshots of the Rock Pocket Mouse populations. Each full-page picture shows the color variation of mice found at two different locations, A and B, at a particular moment in time. (Notes: the pictures provided to you are not numbered in correct order.)

1. Count the number of light colored and dark colored mice that are present at each location. Record (using a dry erase marker) your numbers in the spaces provided at the top of each picture.
2. Place the pictures in what you think is the correct order from the oldest to the most recent. Indicate your order choice by circling the appropriate number under the picture.
3. Explain below how you decided which drawing represents the most recent Rock Pocket Mouse population and why you positioned them in the order or sequence that you did.

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4. Watch the short video *The Making of the Fittest: Natural Selection and Adaptation.* Look for explanations in the differences among the pictures that will help you confirm that the order you put them in is correct. Think about the following as you watch the film:

* Why are some mice light colored and others are dark colored?
* Does fur color provide any advantages or disadvantages?
* What role does the Rock Pocket Mouse play in the desert food web?
* What can explain the differences among the pictures?

5. Using what you learned by watching the video, check the order in which you arranged the pictures. Change the order as needed. Once you are satisfied that you have them in the correct order, fill out the data table below using the counts you recorded on the drawing sheets.

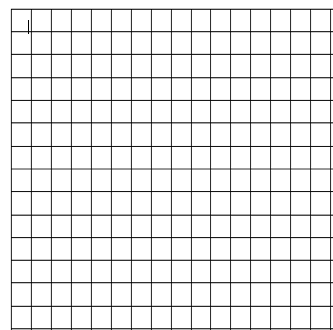
The Number of Mice found at Different Locations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location** | **Description of the Mice** | **Oldest**  **(First)** | **Second**  **Oldest**  **(Second)** | **Third**  **Oldest**  **(Third)** | **Most Recent**  **(Fourth)** |
| **Location A** | **Number of Mice with**  **Light Fur** |  |  |  |  |
| **Location A** | **Number of Mice with**  **Dark Fur** |  |  |  |  |
| **Location B** | **Number of Mice with**  **Light Fur** |  |  |  |  |
| **Location B** | **Number of Mice with**  **Dark Fur** |  |  |  |  |

6. Create **two** double bar graphs based on the data that shows the number of mice at locations A and B over the four collection periods. One graph will represent Location A and the second graph will represent Location B. Be sure to title and label the X and Y axes. Use your colored pencils to color in the bars. Choose one color to represent light fur and a second color to represent dark fur.

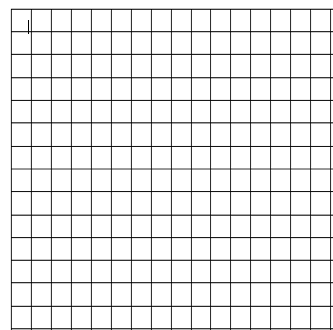
**Location A**

Number of Light & Dark Pocket Mice



**Location B**

Number of Light & Dark Pocket Mice



**Analyze: Write complete sentences and use ALL of the lines provided!**

1. Explain why the color of the Rock Pocket Mouse can influence the organism’s ability to survive and produce offspring.

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1. Explain why the dark colored mice at location A existed. Why did this color not become more common in the population?

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1. Write a summary about the changes over time in the Rock Pocket Mice that were at location B. Include what caused those changes.

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1. Explain which variation for the hair color trait was Naturally Selected for in Location A. Use EVIDENCE to support your answer.

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1. Use the what you have learned about evolution to explain this quote taken from the video, “While mutation is random, Natural Selection is not. Natural Selection sorts out the winners and losers.”

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Activity adapted from Howard Hughes Medical Institute: Color variation over time in Rock Pocket Mouse Populations

