

Rock Pocket Mouse

PROCEDURE

Name _____

The pictures represent snapshots of rock pocket mouse populations. Each page shows the color variation at two different locations, A and B, at a particular moment in time. (Note: The images are not in order.)

1. Count the number of light-colored and dark-colored mice present at each location at each moment in time. Record your answers in the table on the right.

2. Place the pictures in what you think is the correct order from oldest to most recent. What is the correct order?

Location	Number of light colored mice	Number of dark colored mice
1A		
1B		
2A		
2B		
3A		
3B		
4A		
4B		

3. Explain how you decided which illustration represents the most recent rock pocket mouse population and why you positioned the others in the sequence as you did.



4. Watch the video at <https://goo.gl/ApM5dH>. As you watch, correct the order of your pictures if needed and answer the following questions:

Why are some mice light colored and some mice dark colored?

Does fur color provide any selective advantage or disadvantage?

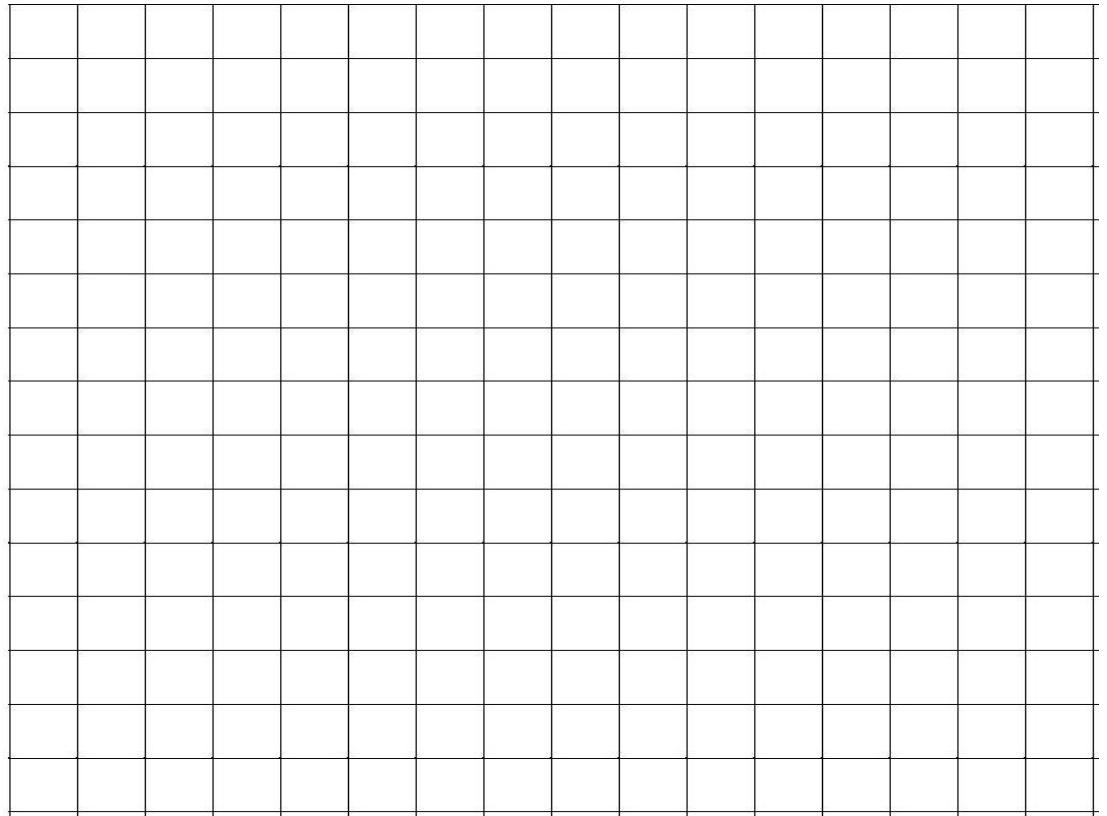
What role does the rock pocket mouse play in the desert food web?

What can explain the differences among the illustrations?

5. Using what you learned by watching the film, check the order in which you arranged the illustrations. Change the order as necessary. Once you are satisfied that you are correct, fill out the data table below using the counts you recorded in the other table.

Number of Mice at Different Locations		Oldest	To	The	Newest
Location A	# of mice with light fur				
	# of mice with dark fur				
Location B	# of mice with light fur				
	# of mice with dark fur				

6. Use colored pencils to prepare a bar graph based on the data that shows the distribution of the mice at locations A and B through time. Be sure to provide an appropriate title for the graph, and titles and labels for the x - and y -axes.



QUESTIONS

1. Explain why a rock pocket mouse's color influences its overall fitness. Remember that "fitness" is defined by an organism's ability to survive and produce offspring.
2. Explain the presence of dark-colored mice at location A. Why didn't this phenotype become more common in the population?
3. Write a scientific summary that describes changes in the rock pocket mouse populations at location B. Your summary should include
 - ◇ a description of how the population has changed over time,
 - ◇ an explanation of what caused the changes, and
 - ◇ a prediction that describes what the population will look like 100 years in the future. Base your prediction on trends in the data you have organized. You can assume that environmental conditions do not change over the 100 years.
4. Use the data and what you have learned about evolution to explain how mutation is a random process, but natural selection is not random.