

Question Exploration Guide

1 What is the Critical Question?

Crickets within a population have slightly different colors, mouth shapes, preferred foods, egg-laying habits, and resistance to disease. What will happen to this cricket population if the environment suddenly changes significantly?

- a. The environmental changes will cause some members of the population to mutate in order to adapt.
- b. Individual crickets will acquire traits needed in the new environment and pass these traits to their offspring.
- c. The variation within the species guarantees that the entire population will survive the environmental changes.
- d. Individual crickets with traits best suited to the new environments will be the most likely to survive.

2 What are the Key Terms and explanations?

Resistance	when your body can fight off a disease so you don't get sick,
Population	a group of living things of the same species living in a certain area
Environmental	caused by the environment (where a living thing lives)
Acquire	get from somewhere
Trait	a behavior or physical characteristic that a living thing has because of it's genes
Variation	when different members of the same species have different traits

3 What are the Supporting Questions and answers?

How do environmental changes affect populations?

If an organism is well adapted to the current environment, they may not be able to handle the new environment and will die. When an organism, dies, it doesn't pass on it's genes and that can change the gene makeup of the population.

Can individuals mutate to adapt?

No, organisms may be born with mutations or develop mutations but an organism can't "control" the mutating.

Can individuals acquire characteristics?

No, physical characteristics are programmed in the DNA so an organism is born with their physical characteristics.

Does variation guarantee survival of a whole population?

It doesn't guarantee it but it greatly increases the chances because if there is variation in a population, chances are that some organisms will survive even if others don't.

Do traits best suited to the environment help animals survive?

Yes, if an organism has a trait that makes it well suited to its environment (like a white rabbit in an area with a lot of snow) it is more likely to survive.

4 What is the main Idea answer?

Environmental pressure acts for some traits and against others. When there is a change in environmental pressures some crickets will survive and reproduce and others will die reducing the frequency of their genes in the population.

5 How can we use the main idea?

Remember for any multiple choice question, you want to find the BEST answer, so:

1. **Carefully read each answer choice paying attention to vocabulary and words like “always” and “never”. Which one best matches the answer in Box 4?**
 2. **Which choices can you rule out right away? Cross them out.**
 3. **Which ones are you unsure about? Use the information in boxes 2 and 3 to help you.**
 4. **Continue eliminating until you have the BEST choice left (it should be a lot like the answer in Box 4).**
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6 Is there an Overall Idea? Is there a real-world use?

How has the overuse of antibiotics created “super bugs”?