

4. Record your results and any additional data or observations.
Be sure to note any questions you have that you would like to test.
5. Answer Analysis item 1.

Part B: Changing Environments

6. Now use the simulation to test how changing the environment affects the frequency of the sickle cell trait in your population. Change the variables to alter the percent chance of getting malaria or the quality of health care.
Hint: Change one variable at a time.
 - a. Record your variables and the results.
 - b. Write down any other questions that you would like to test.
 - c. Continue to do this until you can explain the cause-and-effect relationship between the variable and the frequency of sickle cell carriers in the population.

ANALYSIS

1. Use the data you collected or observations you made about the environment to complete the following:
 - a. Use a mathematical representation, like a ratio or percent, to explain what happened to the frequency of the sickle cell trait over time when the chance of getting malaria was high and there was no health care.
 - b. Is there a cause-and-effect relationship? If so, describe that relationship. If not, explain why not.
2. Explain how environmental changes affect the sickle cell trait over time in your population. Use evidence, including mathematical representations, from your investigation to support your explanation.
3. Explain why the frequency of sickle cell trait is so much higher in sub-Saharan Africa than in most other parts of the world.
4. What do you think would happen to the sickle cell trait in an environment with no malaria and increased resources? Explain your prediction.