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Seasons of Change Activity Worksheet— Disappearing Marine Iguanas Case Study

Instructions: Complete the lab report below while you explore the impact the events have on the Marine Iguana population in the Seasons of Change Activity-Disappearing Marine Iguanas Case Study. You will submit your completed activity worksheet. (20 points possible)

1. Using the map and the minimal knowledge that Liz has at this point, propose three different hypotheses regarding the sudden high mortality of marine iguanas. Record your answers in the worksheet and post your hypotheses to the 03.01 class discussion board before proceeding to the next question. (3 points possible)

Hypotheses One:

The iguanas were adapted to warmer weather, meaning that the change in weather has affected them in a serious way.

Hypotheses Two:

The habitats of the iguanas have been affected by the climate changes, meaning that there are not enough shelter locations for all the iguanas (therefore lowering the population).

Hypotheses Three:

The change of the patterns in the ocean had a significant effect on the iguanas.

2. Look at your classmates' hypotheses on the discussion board. Choose one hypothesis that seems most likely to you. Provide the student's name and hypothesis and tell what evidence you would need to support (or refute) it. (3 points possible)

I can't exactly answer this question because there are not any other responses on the discussion board, as I am the first student to post there.

3. Given what you know at this point about marine iguanas and the abiotic effects of ENSO, develop two possible directions of research that Liz should pursue to understand exactly why the iguanas suffered such a high mortality. Keep in mind that you need to consider indirect effects. While environmental temperature does change metabolic rates of ectotherms, the iguanas are exposed to a wide range of temperatures as they feed and bask on the lava. Direct mortality in response to a temperature change of a couple of degrees is unlikely. (3 points possible)

Possible Research Direction One:

More rainfall has occurred, due to the changes in climate. This can result in their habitats being destroyed.

Possible Research Direction Two:

Because of the climate changes, the temperatures have changed. This can result in them having trouble with things such as regulating their body temperature.

4. Choose one of those directions of research and determine what data you would need to find to support your ideas. (2 points possible)

- The amount of habitats before and after El Niño
- Rainfall amounts before and during El Niño.
- The number of iguanas that exist before and after El Niño.
- Data on the change in temperatures.

5. Design an experiment that would help you collect the data you have identified in question four. Identify your independent variable(s), dependent variable(s), treatments, and control. Give a short explanation of how you would test your idea. (5 points possible)

This experiment would involve creating replicas of Marine Iguana habitats inside of something like a tank. When you complete making it, that is known as the climate conditions being normal. But add something like heavy water pouring on it and that can represent the change in the climate conditions (El Niño).

I hope that makes sense, it's kind of hard for me to explain it in simple terms.

Independent variable – The climate conditions (such as rain/temperature).

Dependent variable – The population of Iguanas.

Control – The iguana population during normal conditions (not during El Niño).

Treatments – The added things to represent changed climate conditions, like heavy water to represent heavy rain.

6. What conclusions do you think Liz made about the cause of population declines in marine iguanas? (4 points possible)

- The increased amount of rainfall is having significant effects on their habitats, which contributes to the lowering of their population.
- The increase in temperature is causing effects on the iguanas themselves, as the change in temperature can result in them having trouble with things such as regulating their body temperature.
- Because of the destruction of the iguanas' habitats, they have nowhere to live and be protected from predators.