Biology EOC Review

NAME_____

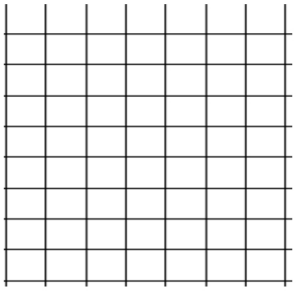
Goal 1: Learner will develop abilities necessary to do and understand scientific inquiry.

1.01 Identify biological problems and questions that can be answered through scientific investigations.

1.02 Design and conduct scientific investigations to answer biological questions (create testable hypotheses, identify variables, use a control or comparison group when appropriate, select and use appropriate measurement tools, collect and record data, organize data into charts and graphs, analyze and interpret data, communicate findings).

You have measured the rate at which a fish breaths at various temperatures by counting the rate at which its gills open. The data is below.

Breathing rate Temperature
19/min 5 deg C
25/min 10 deg C
30/min 20 deg C
34/min 30 deg C
37/min 35 deg C



1. What is the independent variable? The dependent variable? p. 9
Temperature Breathing rate
2. What happens to breathing rate with increase in Temp?
Breathing rate increases
3. What would be a good control for this experiment?
Measure breathing rate of fish in regular environment
4. How do you think the breathing rate was measured?
Counting movements of gill cover or mouth openings
5. What do you think would happen if you raised the temperature even more?
Fish might die at some point – living systems cannot handle too much increase in T.
6. Why would it be a bad idea to do this?
Death of fish

1.03 Formulate and revise scientific explanations and models of biological phenomena using logic and evidence to: explain observations, make inferences and predictions, explain the relationship between evidence and explanation.

Bromothymol blue turns to bromothymol yellow in the presence of carbon dioxide. When the carbon dioxide is removed, the solution will return to a blue color. Two green water plants were placed in separate test tubes, each containing water and bromothymol yellow. Both test tubes were corked. One tube was placed in the light, the other in the dark. After several days, the liquid in the tube exposed to light turned blue.

1. What is the independent variable in this experiment?
Light
2. What is the dependent variable in this experiment?
Color of the bromothymol
3. What is the control for this experiment?
Test tube in the dark
4. This demonstration illustrates that, during photosynthesis, green plants take in carbon dioxide.