

EOC Review Part 1

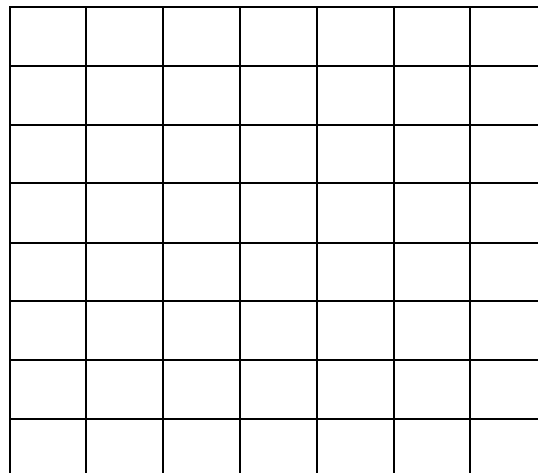
Graphing, Lab Safety, Microscopes, Scientific Method, Characteristics of Life

Graphing

You have measured the rate at which a fish breaths at various temperatures by counting the rate at which its gills open. The data are below. Graph these data using an appropriate scale and label the X and Y axes with the appropriate variables. **“Y” axis – breathing rate; “X” axis – Temp.**

Breathing rate	Temperature
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19/min	05 deg C
25/min	10 deg C
30/min	20 deg C
34/min	30 deg C
37/min	35 deg C



What is the independent variable?

Temperature

What is the dependent variable?

Breathing rate

What happens to breathing rate with increase in temp?

Breathing rate increases

What would be a good control for this experiment?

Measure breathing rate of fish in regular environment

How was breathing rate measured?

Counting movements of gill cover or mouth openings

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.

What are some elements that you would want to hold constant during the study?

e.g., Size of fish, type of fish, size of bowl, amount of water

In general, what kind of data are best shown as a pie chart? A bar graph? A line graph?

Lab Safety and Microscope Use

What kind of care must be taken when working with bacteria?

Use gloves; goggles; do not expose bacteria to air unnecessarily.

Why must care be used when working with bacteria?

Bacteria can cause disease and should be handled with care.

What does the symbol to the right symbolize?

Poison



What should you always wear when around chemicals in the lab (think eyeballs)?

GOOGLES!

If an accident happens in the lab, what should you do first?

Notify the teacher

How do you determine the magnification of the field of view for a microscope?

You multiply the magnification of the ocular lens (eyepiece) by the magnification of the objective lens.

What objective (or magnification) do you start with when looking at something under the microscope?

Scanning objective (40x)

Scientific Method

Describe the steps involved with the scientific method.

1) **Gather information about a problem;**

2) **Form a hypothesis;**

3) **Experiment;**

4) **Record and analyze data;**

5) **Make conclusions;**

6) **Repeat experiment.**

What is the difference between an inference, a hypothesis, and a theory?

Inference: Logical interpretation of those observations based upon prior knowledge or experience.

Hypothesis: A proposed solution or prediction that can be tested

Theory: A well-supported explanation that has been repeatedly tested and confirmed over many years

Why do scientists repeat experiments?

Increases accuracy

Give an example of a hypothesis in "if/then" format that could be tested in the classroom.

e.g., If the window is opened up, it will be cooler inside. If students study 15 minutes every day, they will improve their quiz scores; etc.

Characteristics of Life

Describe the 9 characteristics that are shared by all living things (remember: DOG'S REACH).

Have DNA; have organization (e.g., cells form tissue, tissues form organs); grow and develop; respond to stimuli; reproduce; use energy; consist of cells; maintain homeostasis.

Why are viruses not considered to be biologically alive?

Not made of cells, don't use energy outside of host, don't always have DNA, etc.

What are some of the ways that living things use energy?

Grow, Move, Reproduce,

What is homeostasis?

Maintenance of internal conditions (pH, temperature, water content, solute concentrations, etc)

What element makes all things organic?

CARBON

What are acids and bases?

Acids are substances that have a high H⁺ concentration (pH = 0-6). Bases have a high OH⁻ concentration (pH = 8-14).

What is a buffer?

A solution that prevents big changes in pH.