Problem 5: Lake Waters

Angela Li
New Zealand

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The Problem

A drop of water from a natural pond may contain bacteria, archaea, algae, fungi, protozoa, and other organisms. Perform observations to identify as many species of living organism as possible. What are the chances that another drop contains a different selection of species?

Clarifying Questions

- Did you consider any limitations of your experimental methods
- How was your probability calculated
- The questions asks about ponds, why did you take water from lakes
- What are the classification of the organisms
- What parameters do you think affected your results
- How did you collect the water from the that depths and length way from shore
- How did you measure a drop of water?
- Is the graph showing the frequency of the organisms.
- Do you have anything on probability?

Addressing the Problem

Theory	
Practical	
Probability	
Conclusion	

Strengths

Theory

- Defining regions of the lake
- Good diagrams for clarification

Practical

- Took samples from different zones in lake
- Good visuals, clear photos
- Detailed method, generally good practical

Weaknesses

Theory

- Not much theory
- Vague definitions
- Lack of theory aides in insufficient data of organisms defined

Practical

- Reasons not defined for taking some measures in practical (e.g. why centrifuge?)
- Goes against spirit of the question
- Does not address the probability element of the question
- No titles on graph
- Did not account for errors

Points for Discussion

- Limitations of your experiment
- Accuracy and reliability of results
- How did you identify organisms?
- Growing bacteria
- What was the reasoning behind centrifuging?
- Why do you believe that the time is relevant?
- Why did you not mention the probability aspect?
- Frequency does not matter
- What was the relevance of growing organisms?
  - Staining the water sample - Results