Cornell Guided Notes

Biotechnology for Health (Biomedical Innovations) | 2027-02-25

Name	Period	Date	Lesson
		2027-02-25	

Lesson focus

Experimental vs observational

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Distinguish experimental from observational studies and choose the right design and sample size. Big idea: Choosing the wrong study design before you collect data can make the data uninterpretable -- design decisions made now lock in what you will be able to conclude.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- sample size
- mean
- standard deviation
- t-test
- validity
- reliability

My notes, examples, and questions

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Cornell Notes - Continued

Key words and questions	Prepared details and student notes
Must-know ideas **What should I understand by the end?**	- The defining difference between an experimental study (manipulated independent variable) and an observational study (no manipulation). - How to match a study design to a specific physiology question. - Why sample size affects both the reliability of results and the plausibility of your conclusions. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-10: Compare experimental and observational definitions with concrete physiology examples - 10-25: Classify three provided example studies as experimental or observational, with justification - 25-45: Decide which design fits your physiology question and write a one-paragraph justification - 45-60: Estimate a reasonable sample size and justify it in terms of expected variation - 60-75: Submit your design choice and sample-size rationale - 75-80: Exit check: could someone replicate your study design from your written description alone? **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Compare definitions of experimental and observational studies. - Classify three example studies as experimental or observational. - Decide which design fits your physiology question and why. - Estimate a reasonable sample size and justify it. - Submit your design choice and sample-size rationale. Evidence: Pre-lab - Study design decision: experimental vs. observational classification with justification, plus a sample-size estimate and rationale for the Wednesday lab. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You can classify a study as experimental or observational. - You can justify a sample size for your design. **My notes, examples, and questions**

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Cornell Notes - Continued

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Lab or safety notes **What must I handle carefully?**	Supplies: - Heart-rate or pulse sensor - Lab computer or tablet with spreadsheet software - Stopwatch or timer - Data collection sheet - Calculator - Cleaning wipes for shared sensors **My notes, examples, and questions**

Summary

Today's lesson focused on Experimental vs observational. The main target was: Distinguish experimental from observational studies and choose the right design and sample size. The evidence of learning is Pre-lab: Study design decision: experimental vs. observational classification with justification, plus a sample-size estimate and rationale for the Wednesday lab.. In my own words, the most important idea from today is:

My summary

My final question or connection