

Cornell Guided Notes

Biotechnology for Health (Biomedical Innovations) | 2027-04-29

Name

Period

Date

Lesson

Lesson focus

Project question

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Define a testable claim and methods for your independent capstone project. Big idea: A well-formed project question and methods plan are the foundation of independent scientific inquiry.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- chain of custody
- research question
- methodology
- claim
- evidence
- limitation

My notes, examples, and questions

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Cornell Notes - Continued

Key words and questions

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Must-know ideas
What should I understand by the end?

- A testable claim specifies what you expect to find and in what direction.
- Methods must include the independent variable, dependent variable, control, and measurement units.
- Naming a limitation upfront shows scientific honesty and improves the overall design.

My notes, examples, and questions

Process notes
What happens during class?

- 0-5 min: Warm-up: share your draft project question from the prelab
- 5-20 min: Refine your researchable question with teacher and peer input
- 20-40 min: Write your claim and outline your methods with variables and measurement units
- 40-55 min: Identify your independent variable, dependent variable, and control
- 55-70 min: Name one limitation and how it affects what your results can claim
- 70-80 min: Exit ticket: state your question, claim, and the one control you will include

My notes, examples, and questions

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Steps and evidence What do I do and turn in?

- State a clear, researchable question for your project.
- Write the claim you expect your project to support.
- Outline the methods you will use to gather evidence.
- Identify your key variables and how you will measure them.
- Note one limitation of your proposed approach.

Evidence: Pre-lab - Independent project definition: researchable question, testable claim, methods outline with identified variables and measurement units, a designated control, and one named limitation.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- You wrote a testable claim with matching methods.
- You named your variables and one limitation.

My notes, examples, and questions

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Lab or safety notes
What must I handle
carefully?

Safety:

- All biological materials must be handled at BSL-1 or as directed by the teacher for the specific organism.
- Wear gloves, goggles, and lab coat whenever handling biological samples or chemical reagents.
- Decontaminate all biological waste with 10 percent bleach before disposal; nothing biological goes in regular trash.
- If PCR amplification is used, keep amplicons covered to avoid aerosol contamination of other samples.
- Any human-sourced material (saliva, cheek cells) requires explicit teacher approval and must follow HIPAA-analogous data handling: no student names attached to samples.

Supplies:

- Lab notebook or project planning template
- Micropipettes and tips appropriate for the planned DNA analysis technique
- Agarose gel materials if gel electrophoresis is part of the project method
- PCR tubes and thermocycler access if PCR is included in the project design
- DNA extraction buffer and centrifuge tubes if tissue samples are used
- Appropriate stain and gel imaging access
- Reference restriction map for any plasmid being analyzed

My notes, examples, and questions

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Summary

Today's lesson focused on Project question. The main target was: Define a testable claim and methods for your independent capstone project. The evidence of learning is Pre-lab: Independent project definition: researchable question, testable claim, methods outline with identified variables and measurement units, a designated control, and one named limitation.. In my own words, the most important idea from today is:

My summary

My final question or connection