Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-10-12

Name	Period	Date	Lesson
		2026-10-12	

Lesson focus

Vaccine and disease-model lab

Key words and questions	Prepared details and student notes
Essential question **What is today's target?**	Model how a vaccine triggers adaptive immunity and use disease-spread data to test a simple outbreak prediction. Big idea: How does the body's memory of a pathogen stop an outbreak before it starts? **My notes, examples, and questions**
Key words **What vocabulary unlocks the lesson?**	- cochlea - hair cell - audiogram - vaccine - herd immunity - adaptive immunity **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?**	- Adaptive immunity produces antigen-specific antibodies and long-lived memory B and T cells on first exposure. - A vaccine delivers antigen without disease, priming memory cells so the secondary response is faster and stronger. - Herd immunity depends on the fraction vaccinated exceeding the threshold derived from R-zero. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-5: Hook curves and safety review for dataset work - 5-20: Draw and label adaptive immune response: antigen in, antibody and memory cell out - 20-40: Open disease-model dataset; identify columns; run two vaccination-rate scenarios - 40-55: Record new-infection counts in data table; calculate difference between rates - 55-70: Write comparison sentence; connect molecular diagram to population curve - 70-80: Save all three artifacts to course shell; teacher debrief **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Diagram the adaptive immune response: antigen, antibody, and memory cell, labeling each step. - Open the disease-model dataset in the shell and identify the columns for infected, recovered, and vaccinated. - Run the model at two vaccination rates and record new infections at each rate in a data table. - Write one sentence comparing how the antibody response and the population data each slow disease spread. - Save your diagram, data table, and comparison sentence as your lab evidence. Evidence: Lab report - Adaptive immunity diagram, two-scenario disease-model data table, and one comparison sentence. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You'll be able to trace how a vaccine produces antibodies and memory cells. - You'll be able to use model data to compare outbreak outcomes at different vaccination rates. **My notes, examples, and questions**

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Lab or safety notes
What must I handle carefully?

Safety:
- No wet lab materials today; all work is computational and diagrammatic.
- Dataset is anonymized class-aggregate; do not enter or share any personal health information.
- If the simulation software requires a login, use only your school account credentials.

Supplies:
- Printed or projected blank immune-response diagram template
- Colored pencils or markers (at least two colors for antibody vs. memory cell)
- Access to disease-model dataset in course shell (computer or tablet per student)
- Printed or digital data-table template for recording infection counts

My notes, examples, and questions

Summary

Today's lesson focused on Vaccine and disease-model lab. The main target was: Model how a vaccine triggers adaptive immunity and use disease-spread data to test a simple outbreak prediction. The evidence of learning is Lab report: Adaptive immunity diagram, two-scenario disease-model data table, and one comparison sentence.. In my own words, the most important idea from today is:

My summary

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My final question or connection