Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-09-04

Name	Period	Date	Lesson
		2026-09-04	

Lesson focus

DNA sequencing basics

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Explain how DNA sequencing reads the order of bases and why that sequence can act as a fingerprint for an organism. Big idea: How does reading the order of DNA bases let scientists identify an organism they have never seen before?

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- DNA sequence
- PCR
- Sanger sequencing
- BLAST
- E-value
- query coverage
- control

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?**	- DNA is made of four nucleotide bases: adenine (A), thymine (T), cytosine (C), and guanine (G); sequencing reads their exact order. - Organisms differ in their DNA sequence, so comparing a read from an unknown sample to a database can identify the species. - Molecular identification is faster and more precise than traditional culture-based methods for many pathogens. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-10 min: Activate prior knowledge: write four bases, base-pairing rules, and double-helix structure from memory - 10-25 min: Read the sequencing overview; summarize the process in two sentences in your notebook - 25-40 min: Explain in writing why two organisms have different sequences; connect to mutation and evolution - 40-55 min: Examine a sample nucleotide read; confirm it uses only A, T, C, G and has no obvious errors - 55-70 min: Predict why a unique sequence identifies an unknown pathogen; compare with a partner - 70-80 min: Write one open question about BLAST and post it for tomorrow's lab context **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Write what you already know about DNA's four bases and how they pair. - Read the short overview of how sequencing reads base order, then summarize it in two sentences. - Explain in writing why two organisms have different DNA sequences. - Look at a sample read and confirm it uses only A, T, C, and G. - Predict why a unique sequence could identify an unknown pathogen. - Write one question you have about turning a sequence into an identification. Evidence: Vocabulary task - Notebook entry: four DNA bases with pairing rules, two-sentence sequencing summary, and one question for the BLAST lab. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You will be able to explain what DNA sequencing measures. - You will be able to describe why a sequence can identify an organism. - You will be able to recognize a valid nucleotide read. **My notes, examples, and questions**

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Lab or safety notes
What must I handle carefully?

Supplies:
- Lab computers with internet access
- NCBI BLAST nucleotide tool
- Unknown pathogen DNA sequence file
- Known control sequence file
- Shared results spreadsheet
- Screenshot tool

My notes, examples, and questions

Summary

Today's lesson focused on DNA sequencing basics. The main target was: Explain how DNA sequencing reads the order of bases and why that sequence can act as a fingerprint for an organism. The evidence of learning is Vocabulary task: Notebook entry: four DNA bases with pairing rules, two-sentence sequencing summary, and one question for the BLAST lab.. In my own words, the most important idea from today is:

My summary

My final question or connection