Cornell Guided Notes

Principles of Biomedical Technology (Principles of Biomedical Science) | 2026-10-15

Name	Period	Date	Lesson
		2026-10-15	

Lesson focus

DNA, genes, and protein

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Explain DNA structure and the path from gene to protein before the PLTW diagnosis task. Big idea: The central dogma (DNA to RNA to protein) is the molecular link between a gene sequence and the physical traits and diseases it produces.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- DNA
- chromosome
- gene
- allele
- protein
- transcription
- translation
- mutation

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 a double-stranded molecule organized into chromosomes; genes are specific sequences of base pairs that code for a protein. - Transcription copies a gene from DNA into messenger RNA (mRNA) in the nucleus; translation reads the mRNA codons at the ribosome to assemble a protein from amino acids. - A point mutation changes one base pair, which may change one codon, which may change one amino acid in the resulting protein, potentially altering or destroying its function. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0:00: Warm-up: base-pair matching practice (A-T, G-C); review the antiparallel structure - 0:10: Teacher-led notes: DNA structure, chromosome, gene; transcription (template strand to mRNA); translation (codon to amino acid) - 0:30: Practice: transcribe a short 9-base template strand to mRNA, then translate using a codon chart - 0:45: myPLTW: complete the decoding-a-diagnosis online task on DNA and proteins - 1:05: Identify the variable you will change in the mutation model Wednesday: which base pair, what change, what codon result - 1:10: Exit ticket: write the central dogma as a word equation with one-sentence descriptions of each step **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Take notes on DNA structure, chromosomes, and genes. - Outline transcription and translation as the steps from gene to protein. - Review how a mutation can change a protein and cause disease. - Complete the PLTW decoding-a-diagnosis online task on DNA and proteins. - Identify the variable you will change when modeling a mutation. Evidence: Pre-lab - Pre-lab mutation plan: the original DNA template sequence (9 bases minimum), the mRNA transcription, the amino acid translation, and the specific base-pair change you plan to introduce Wednesday. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- I can describe DNA structure and where genes sit. - I can outline transcription and translation. **My notes, examples, and questions**

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Lab or safety notes
What must I handle carefully?

Supplies:
- DNA-to-protein modeling kit or paper nucleotide cutouts
- Codon (amino acid) chart
- Chromosome and gene diagram
- Colored markers for base pairing
- Lab notebook for the model and mutation trace

My notes, examples, and questions

Summary

Today's lesson focused on DNA, genes, and protein. The main target was: Explain DNA structure and the path from gene to protein before the PLTW diagnosis task. The evidence of learning is Pre-lab: Pre-lab mutation plan: the original DNA template sequence (9 bases minimum), the mRNA transcription, the amino acid translation, and the specific base-pair change you plan to introduce Wednesday.. In my own words, the most important idea from today is:

My summary

My final question or connection