

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-02-08

Name

Period

Date

Lesson

Lesson focus

Concentration and serial dilution

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Calculate concentrations and plan a serial dilution so you can prepare known sample strengths. Big idea: How do scientists use a series of known concentrations to measure the unknown concentration of a sample?

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- antigen
- antibody
- ELISA
- serial dilution
- standard curve
- substrate
- absorbance

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?

- Concentration is the amount of a substance dissolved in a given volume; a 1:10 dilution means one part sample to nine parts solvent.
- A serial dilution creates a sequence of known concentrations by repeating the same dilution factor at each step.
- A standard curve plots signal versus known concentration, allowing you to read off the concentration of any unknown sample.

My notes, examples, and questions

Process notes
What happens during class?

- 0-10 min: Define concentration and dilution factor in notebook; review $C_1V_1 = C_2V_2$ if needed
- 10-25 min: Work through the serial dilution example: a 1:10 starting from a known stock, four steps
- 25-40 min: Plan your own four-step 1:10 serial dilution; write concentration at each step; double-check math
- 40-55 min: Predict how color/signal intensity would change down the series and explain why
- 55-70 min: Write one sentence connecting serial dilutions to standard curve construction
- 70-80 min: Partner check: swap plans and verify each other's concentrations at every step

My notes, examples, and questions

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Cornell Notes - Continued

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Steps and evidence What do I do and turn in?

- Define concentration in your notebook as amount of substance per volume.
- Read the serial-dilution example, then write what a 1:10 dilution does to concentration.
- Plan a four-step 1:10 serial dilution and write the concentration at each step.
- Double-check your math: each step should be one-tenth of the step before.
- Predict how the color or signal would change down a dilution series.
- Write one sentence on why dilutions are useful for building a standard curve.

Evidence: Data table - Four-step 1:10 serial dilution plan with concentration calculated at each step, plus a one-sentence prediction of signal change.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- You will be able to define and calculate concentration.
- You will be able to plan a serial dilution and predict each step's concentration.
- You will be able to explain why dilutions matter for measurement.

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:

- Micropipettes and tips
- Microcentrifuge tubes or microplate
- Stock antigen solution
- Buffer or diluent
- Microplate or tube rack
- Lab notebook for the dilution table

My notes, examples, and questions

Summary

Today's lesson focused on Concentration and serial dilution. The main target was: Calculate concentrations and plan a serial dilution so you can prepare known sample strengths. The evidence of learning is Data table: Four-step 1:10 serial dilution plan with concentration calculated at each step, plus a one-sentence prediction of signal change.. In my own words, the most important idea from today is:

My summary

My final question or connection