Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-10-05

Name	Period	Date	Lesson
		2026-10-05	

Lesson focus

Culturing and colony data lab

Key words and questions	Prepared details and student notes
Essential question **What is today's target?**	Streak and incubate a culture, then count and describe colonies to gather data on bacterial growth. Big idea: How does careful technique and systematic observation turn a streak of bacteria into reliable scientific data? **My notes, examples, and questions**
Key words **What vocabulary unlocks the lesson?**	- aseptic technique - culture - colony - inhibition - mutation - horizontal gene transfer **My notes, examples, and questions**

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Cornell Notes - Continued

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Must-know ideas **What should I understand by the end?**	- A streak plate isolates individual bacteria so each colony that grows represents one clone descended from a single cell. - Colony morphology (size, color, shape, edge type) is a first-level identifier; consistent morphology across the plate is a sign of a pure culture. - Contamination colonies are identified by distinct morphology different from the target; their count is recorded separately but they are not included in target-colony analysis. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-8 min: Don gloves and goggles; review Tuesday's aseptic technique checklist before opening any materials - 8-25 min: Streak the plate using the four-quadrant method (or as directed); use aseptic technique throughout - 25-30 min: Label plate with name, date, and sample source; set to incubate inverted - 30-52 min: Examine incubated plates (pre-grown or same-day depending on protocol); count distinct colonies using a grid or tally method - 52-67 min: Describe colony features in the data table: size (mm estimated), color, shape (round/irregular), and edge (smooth/rough/wavy) - 67-80 min: Note and separately count any contamination colonies; record target-colony count and morphology summary **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Put on gloves and use aseptic technique to streak your plate. - Label the plate with your name, date, and sample, then set it to incubate. - Once colonies grow, count the distinct colonies on your plate. - Describe colony features: size, color, shape, and edges. - Note any signs of contamination and separate them from your target colonies. - Record your colony count and descriptions for analysis. Evidence: Data table - Colony data table: colony count, size estimate, color, shape, edge type for target colonies; separate tally for contamination colonies. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You will be able to streak and incubate a culture aseptically. - You will be able to count and describe bacterial colonies. - You will be able to distinguish target colonies from contamination. **My notes, examples, and questions**

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Lab or safety notes
What must I handle carefully?

Safety:
- Goggles and gloves on before opening any culture tube; keep on until all materials are decontaminated.
- Treat all bacterial cultures as biohazardous even if the strain is labeled safe; apply standard BSL-1 precautions.
- Never open culture tubes near open flames or air vents; keep lids on except during inoculation.
- Flame inoculating loops until red-hot and allow to cool for five seconds before touching culture; do not wave hot loops through the air.
- Set plates to incubate inverted; do not stack more than three plates to prevent slipping.

Supplies:
- Nutrient agar or LB agar plates (one per student or per pair)
- Bacterial cultures in liquid broth (appropriate BSL-1 safe strain such as E. coli K-12)
- Inoculating loops (disposable plastic or reusable nichrome for flaming)
- Bunsen burner or alcohol lamp for flaming loops (if reusable)
- Permanent marker for plate labeling
- Incubator set to 37C or appropriate temperature
- Nitrile gloves (at least one pair per student)

My notes, examples, and questions

Summary

Today's lesson focused on Culturing and colony data lab. The main target was: Streak and incubate a culture, then count and describe colonies to gather data on bacterial growth. The evidence of learning is Data table: Colony data table: colony count, size estimate, color, shape, edge type for target colonies; separate tally for contamination colonies.. In my own words, the most important idea from today is:

My summary

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My final question or connection