Culturing Bacteria & Aseptic Technique

SBI3C | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

How do simulated handling practices influence contamination of a culture plate, and how does observation time influence the number of visible colonies?

Learning goal: use the virtual model to gather evidence, explain culturing bacteria & aseptic technique and communicate a supported conclusion.

Materials: WorksheetGalaxy virtual laboratory, this assignment, calculator or spreadsheet if needed. Virtual observations only; do not recreate hazardous procedures or perform physical fitness tests without teacher approval.

1. Define two relevant scientific terms from the Background Information tab. (K/U)

2. Write a prediction or hypothesis with a scientific reason. (K/U, T/I)

3. Identify the variable or feature compared, the measured outcome and constants or consistent observation criteria. (T/I)

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Perform the virtual laboratory

Open the corresponding virtual lab and read Background Information. Follow the investigation instructions below. Record authentic simulated results; do not invent data.

Investigation A — Aseptic technique

- Choose a consistent starting inoculum and observation time.
- Compare sterile, partially controlled, and poor handling conditions.
- Run and record at least three trials per condition.
- Compare contamination counts and identify a suitable control.

Investigation B — Growth over time

- Hold inoculum and handling condition constant.
- Record simulated colony counts at 12, 24, 36, and 48 hours.
- Graph the change in visible colonies over time.

Record each completed observation using the simulator’s record control when available. Use Data & Graphs to review results. Export CSV if available; attach additional rows or screenshots when needed.

Record the exact settings and any changes to the method.

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Observations & results

Enter the actual results. Keep trial IDs consistent between continued tables. Attach the full exported data or extra sheets when the procedure requires more rows. Include units as displayed.

Data table 1

Trial / item	Handling	Sample	Hours	Sample CFU	Unintended CFU

Data table 1 — continued (2)

Trial / item	Total

Qualitative observations / sample calculation (show units where applicable)

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Analysis, conclusion & assessment

4. Present a labelled graph of a measured relationship, or an annotated diagram / comparison chart for qualitative investigations. Attach it separately. Explain the pattern using recorded evidence. (C, T/I)

5. Analysis: compare conditions, controls and time trends (K/U, A)

6. Compare two contrasting observations from your investigation of Culturing Bacteria & Aseptic Technique. Explain the difference using the background information. (K/U, A)

7. Use a specific recorded result to answer the research question. Explain the scientific reasoning behind it. (K/U, A)

Conclusion and evaluation: answer the research question, revisit the prediction using evidence, identify a model limitation and propose an improvement. (T/I, A)

Submit this assignment plus your completed Lab Report (printed or saved as PDF from the lab) and any supporting data/figures.

K/U: accurate concepts /10	T/I: method, data, reasoning /12	C: clear tables, units, report /8	A: explanation, conclusion, transfer /10

Total: /40