Cheek Cell & Onion Cell Microscopy

SNC2D | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

How can observations from this virtual investigation explain cheek cell & onion cell microscopy?

Learning goal: use the virtual model to gather evidence, explain cheek cell & onion cell microscopy 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.

- Write a hypothesis predicting two visible similarities and two differences.
- Examine onion epidermis at 40×, 100×, and 400× total magnification. Adjust focus and stain.
- Examine cheek epithelial cells at the same magnifications.
- Use the structure-identification tool to identify nucleus, membrane, cytoplasm, and onion cell wall.
- Estimate a cell's length using the provided illustrative field-of-view diameter and cell proportion.
- Record at least three trials for each specimen. Compare means within the same specimen type.
- Complete the lab report and discuss model limitations.

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	Specimen	Magnification	FOV diameter (µm)	Proportion	Estimated length (µm)

Data table 1 — continued (2)

Trial / item	Focus

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. Describe the cheek cells at low and high magnification. (K/U, A)

6. Identify three structures common to both cell types. (K/U, A)

7. Explain why the onion cell wall is visible but cheek cells have no cell wall. (K/U, A)

8. Compare the observed shapes and arrangement of the two specimens. (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