Salivary Amylase & Starch Digestion

SBI3C | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

How do temperature and pH influence the rate at which amylase digests starch?

Learning goal: use the virtual model to gather evidence, explain salivary amylase & starch digestion 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 the most effective temperature and pH.

• Keep pH at 7 and test at least five temperatures, including a cool, near-body, and high temperature.

• Keep temperature at 37 °C and test at least five pH values.

• Run at least three replicates per condition and record starch remaining at 5 minutes.

• Compare the trends and identify controls and limitations.

• Complete the lab report, then print it or save it as PDF.

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	Temp (°C)	pH	Time (min)	Enzyme?	Starch remaining (%)

Data table 1 — continued (2)

Trial / item	Iodine result

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. Explain how temperature and pH affect enzyme function (K/U, A)

6. Compare two contrasting observations from your investigation of Salivary Amylase & Starch Digestion. 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