Anatomical Movements & Surface Anatomy

PSK4U | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

How do anatomical planes and joint actions help us describe human movement consistently?

Learning goal: use the virtual model to gather evidence, explain anatomical movements & surface anatomy 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.

• Review anatomical position and three anatomical planes.

• In the Experiment tab, select each movement. Observe the animated limb, identify the primary joint action and plane, and submit a prediction.

• Record at least six movement trials, including flexion/extension, abduction/adduction, rotation and ankle movement.

• Switch to Surface Landmarks. Locate and identify at least four marked structures.

• Compare your predictions with the feedback and complete the report questions.

• Export the data as CSV and print your report to PDF.

• Use correct anatomical terminology; distinguish planes and axes; identify selected palpable landmarks; explain why reference position matters.

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	Investigation	Item	Prediction	Expected	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. Purpose: Identify anatomical planes, movements and surface landmarks using a virtual model. (K/U, A)

6. Explain anatomical position and why it is used as a reference. (K/U, A)

7. Compare the sagittal, frontal and transverse planes with one movement example each. (K/U, A)

8. Explain the difference between flexion and extension using a specific joint. (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