Molecular Recognition and Bioethics Boundaries

g12_u03_w12

Purpose and boundary

Evaluate original fictional binding-model cards and communication boundaries. No genetic test, biological sample, diagnosis, treatment, or personal-data activity is requested.

Targets: I can describe a stated recognition model, separate evidence from identity claims, and explain why ethical boundaries matter. **Vocabulary:** recognition model, specificity, affinity, uncertainty, privacy, consent, claim boundary. **Prerequisites:** intermolecular forces, models, evidence limits, systems.

Fictional Card S has shapes and text labels only. It is not evidence about a person, organism, or real molecule.

1. What does a recognition model represent?

2. Why is a shape match not proof of a real interaction?

3. Define specificity as a model term.

4. Why can specificity be conditional?

5. What does affinity language require before a quantitative claim?

6. Name one missing factor in a simplified binding card.

7. What claim is supported if Card S labels two shapes as compatible?

8. What identity claim is not supported?

9. Why should a student avoid personal-data collection in this activity?

10. Why are consent and privacy relevant to biological information?

11. What is a respectful boundary when a discussion resembles health or genetics?

12. Write a sentence separating a model relation from a medical claim.

13. Why is an alternative explanation important in a recognition comparison?

14. What does uncertainty add to a conclusion?

15. What text annotation improves access to a shape-based model?

16. Why can a model be useful without being a decision tool?

17. A card has two possible matching partners. What conclusion is justified?

18. Name one additional fictional evidence card that could help compare models.

19. State one prohibited overclaim from Card S.

20. Write a two-sentence bounded, ethical conclusion for Card S.