

The Making of a Scientist

Character & Motivation

1. Richard Ebright possessed "the will to win." **Analyze** how his competitive spirit was different from simply wanting to win prizes, and explain how it fueled his scientific inquiry.
 2. "His mother made him." **Critically evaluate** this statement. While she was a crucial enabler, what intrinsic qualities did Ebright himself possess that were essential for his success, which his mother could only nurture but not create?
 3. **Contrast** Richard Ebright with his social studies teacher, Richard A. Weiherer. What do their respective passions reveal about the different ways people can contribute to knowledge and society?
 4. The story mentions Ebright's diverse interests in canoeing, debating, and photography. Why is it significant to portray him as a **well-rounded individual** rather than just a scientist? What does this suggest about the nature of a brilliant mind?
 5. How does Ebright's character evolve from being a passive collector and observer to an active and innovative experimenter? **Pinpoint the key turning points** that mark this transformation.
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The Scientific Process & Themes

6. Ebright's loss at his first county science fair was a pivotal moment. **Argue** that this failure was more instrumental in "the making of a scientist" than many of his subsequent successes.
7. **Discuss** the central theme of how a simple hobby can evolve into a profound scientific career. What are the essential ingredients that facilitate this transition, according to the story?
8. Using Ebright's project on the purpose of the twelve gold spots on a monarch pupa, **trace his journey through the scientific method**: observation, forming a hypothesis, experimentation, and drawing a conclusion.
9. Ebright's research showing that starlings *would* eat monarchs didn't support the popular theory. **Explain** why, in science, disproving a hypothesis can be just as valuable as proving one.
10. The title is "The Making of a Scientist." Does the story suggest that scientists are born with innate talent, or are they '**made**' through mentorship, perseverance, and experience? Justify your interpretation.

Plot, Structure & Symbolism

11. **Analyze** the symbolic and practical importance of the book *The Travels of Monarch X*. How did it serve as the catalyst that transformed Ebright's hobby into a scientific pursuit?
12. **Explain the causal chain** that connects a children's book about butterfly migration to a revolutionary theory about how cells read their DNA blueprint.
13. How does the author structure the narrative? Why is it more effective to present Ebright's journey as a series of **sequential projects and challenges** rather than just listing his final achievements?
14. What is the significance of Ebright's work on insect hormones **unexpectedly leading him to his theory on cell life**? What does this teach us about the nature of scientific discovery?
15. **Evaluate the role of mentorship** in the story. Beyond his mother, how did figures like Dr. Frederick A. Urquhart contribute to Ebright's development?

Critical & Hypothetical Thinking

16. **Imagine** Ebright had won a prize at his first science fair for his neat slides of frog tissues. How might this early, unearned success have negatively impacted his growth as a scientist?
17. The story focuses on the "what" and "how" of Ebright's success. What potential **struggles, doubts, or ethical dilemmas** (e.g., experimenting on living creatures) might the celebratory narrative have overlooked?
18. The final step in Ebright's journey was connecting his research to the bigger picture of DNA. What does this imply about the difference between a good scientist and a **truly great scientist**?
19. Apply the central lesson of the story—"doing a real experiment" instead of just making a "neat display"—to another field of study, such as literature or history. **What is the equivalent of a "real experiment"** in that field?
20. **Critically assess** the three qualities mentioned for a scientist: a first-rate mind, adding curiosity, and mixing in the will to win. Are these qualities sufficient? What other attributes, demonstrated by Ebright, would you add to this list?