

JINENDER SONI
Founder, MISSION GYAN**Chapter-6 | The Making of
a Scientist****Worksheet-1****Multiple Choice Questions**

1. **What other interests did Richard pursue during his student life?**
(a) Debating and public speaking (b) Photography
(c) All of these (d) Canoeing
2. **How did Richard's mother shape his mind towards science?**
(a) She set challenges for his young mind (b) All of these
(c) She took him to trips (d) She bought him scientific equipments
3. **Which book opened the world of science for Richard in his childhood?**
(a) A look at magnets (b) The travels of Monarch X
(c) Floating and sinking (d) ABC'S of Science
4. **Which theory of Richard made him an accomplished scientist and brought him fame?**
(a) Reason behind the migration of monarch butterflies
(b) Cause of a viral disease in the monarch butterflies
(c) Discovery of an unknown hormone
(d) Theory on working of cells and reading of DNA
5. **Who motivated Ebright towards public speaking and debating skills during his high school days?**
(a) Dr Frederick (b) James R. Wong
(c) Richard A. Weiherer (d) His school's principal
6. **Who gave Ebright suggestions for his science experiments during his high school days?**
(a) Dr Frederick A. Urquhart (b) Richard A. Weiherer
(c) James R. Wong (d) Richard's mother
7. **When did Richard get the idea for his new theory about cell life?**
(a) While looking at the X-ray images of the chemical structure of a hormone.
(b) While experimenting with the monarch pupa.
(c) While observing some insects under the telescope.
(d) While carrying dissection of a cell.
8. **Who authored the book, The Travels of Monarch X?**
(a) Richard H. Ebright (b) Dr Frederick A. Urquhart
(c) James R. Wong (d) Richard A. Weiherer

9. In which journal was Richard H. Ebright's research published?

- (a) Journal of nutrition
- (b) Proceedings of the National Academy of Science
- (c) Journal of Biochemistry
- (d) IEEE journal

10. From which university did Richard H. Ebright graduate?

- (a) Harvard
- (b) Stanford
- (c) Buckingham
- (d) Oxford

Fill in the blanks :

11. The central idea of the book The Travels of Monarch X is _____.

12. _____ worked with Ebright on his theory on working of cells.

True / False

13. Richard took to his defeat at the county science fair in a constructive manner.

14. Richard's mother was supporting and encouraging.

Very Short Type Questions

15. A parent should try to be a companion to a child. Explain with reference to Richard's mother.

16. What did Ebright learn from his failure at the Science fair?

Short Type Questions

17. Why did Ebright lose interest in tagging butterflies?

18. How did Dr. Urquhart encourage Ebright?

Essay Type Questions

19. How did Ebright get the idea of his new theory about cell life?

20. What experiments and projects does he then undertake?

HOTS

21. **Assertion (A)** : Richard Ebright was a successful scientist who gave a new theory of cells to the scientific world.

Reason (R) : He discovered how cells can 'read' the blueprint of DNA, which determines the form and function of the cell.

- (a) Both A and R are true, and R is the correct explanation of A.
- (b) Both A and R are true, but R is not the correct explanation of A.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

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Answer & Solution

1. (c)
Richard was an all-rounder in university. Apart from academics, he was an established debater and public speaker. He was good at canoeing and was an expert photographer..
2. (b)
Richard's mother spent quality time with her son, motivating his curious mind. She presented him the book that became a turning point in his life and bought him scientific equipment to quench his thirst for knowledge.
3. (b)
The book inspired the young Richard. It developed a love for science in his young and inquisitive mind.
4. (d)
With this discovery, Richard got an answer to one of the biggest puzzles in biology. He found how the cell can read it's DNA.
5. (c)
Mr Weiherer inspired young Ebright towards developing skills like debating and public speaking. He opened his mind to new ideas.
6. (a)
Dr Frederick gave him a stack of suggestions for experiments.
7. (a)
With these images, Richard discovered the working of cells and how they read the DNA. It was indeed a great discovery that brought fame to him.
8. (b)
He was a zoologist who studied the migration of the monarch butterflies.
9. (b)
It is a scientific journal of very high stature, also this was the first time that it published an article on the research of college students.
10. (a)
Richard graduated from Harvard University with highest honours. He stood second in his class of fifteen hundred and ten students.
11. It gave an insight into the migration of monarch butterflies
12. James R. Wong
13. True
14. True
15. Richard's mother played a huge role in making him a great scientist. She would take him on trips to encourage learning. He was a single child. After his father died, his mother made him the focus of her life. She would buy him all kinds of microscopes, telescopes and other equipment.

After dinner, she gave him problems to solve. This helped Richard to learn a lot. She was his only companion for a long time. It was his mother who got him the book 'The Travels of Monarch X'. This book opened the world of science for Richard. She also wrote to Dr Urquhart to guide her son. The scientist helped Richard and guided him. Thus, his mother actually shaped him into an extraordinary scientist..

16. He displayed slides of frog tissues under a microscope instead of doing actual experiments, Ebright's seventh-grade project at the county science fair was not awarded any medals. He learned from this experience that if he wanted to succeed, he would need to perform legitimate tests rather than just put on a show.
17. Ebright used to tag butterflies' wings and let them go. In fact, the basement of his house was home to thousands of monarch butterflies. He started losing interest in it because it was a tedious job and there wasn't much feedback.
18. Dr. Urquhart wrote in his book a note for the readers for inviting them to tag butterflies. Ebright started tagging the butterflies and whoever came across those tags was requested to send them to Dr Urquhart. Dr. Urquhart encouraged Ebright by providing him with challenging problems, allowing him to work independently that helped him develop confidence and a strong work ethic.

19. In an experiment with a group of butterflies, Richard Ebright reared the eggs of female monarch butterflies. He also investigated the virus that caused an illness that wiped off all monarch caterpillars. Additionally, he looked for commonalities between Viceroy4 / 8 and Monarch butterflies. He was able to develop a novel explanation for the existence of cells because of his investigation of insect hormones.
20. Richard Ebright decided to conduct real experiments after he did not win anything in the science exhibition. He tried to find the cause of a viral disease, that killed nearly all monarch caterpillars every few years. Later he tested a theory that viceroy butterflies copied monarchs for survival against predators. In the second year of his high school, Ebright discovered an unknown insect hormone. In the years that followed he also discovered the chemical structure of the hormone and the theory of cell life was developed.
21. (a) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.