

Chapter Review

- This is a biographical account of Richard Ebright, an American scientist, by Robert W. Peterson.
- Richard was a curious child who collected butterflies. By second grade he had collected all twenty-five species in his hometown, and he would have stopped there.
- His mother gave him a book 'The Travels of Monarch X', about how monarch butterflies migrate to Central America. It became a turning point and he started tracking butterflies.
- His mother always supported him: she took him on trips, and bought telescopes, microscopes and cameras.
- In a science fair he displayed frog tissue slides but did not win. He learnt that a good scientist must do real experiments, not just display.
- In eighth grade he studied a viral disease that killed monarch caterpillars, suspecting a beetle. Next, he tested viceroy butterflies and showed that they imitate monarchs. He also discovered an unknown insect hormone.
- This later helped him discover how a cell 'reads' the blueprint of DNA. He won the Westinghouse Science Talent Search, and later became a scientist at a university.
- The author says three things make a scientist: a first-rate mind, curiosity and the will to win for the right reasons.

Key Terms

Monarch – A large orange butterfly that migrates long distances.

Migrate – To move from one region to another.

Hormone – A chemical made in the body for growth.

DNA – The substance that carries genetic information.

Curiosity – The urge to know.

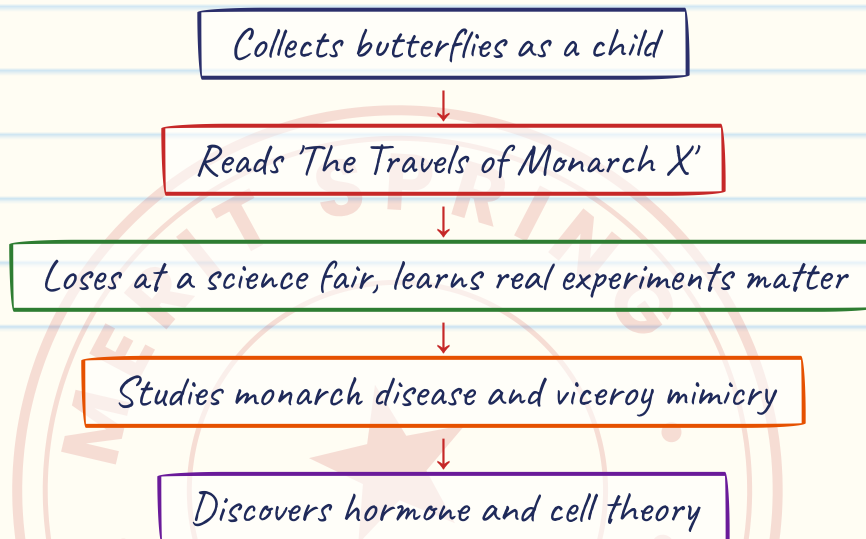
Science fair – A competition of science projects.

Pupa – The stage of an insect between larva and adult.

Experiment – A test to find the truth.

Diagrams / Flowcharts

Richard's Growth



Qualities of a Scientist

Three Ingredients

- First-rate mind
- Curiosity
- Will to win for the right reasons

Richard Showed

- Debater and canoeist
- Excellent photographer
- Hard worker, competitive

About the Author

- Robert W. Peterson wrote this piece based on Ebright's life as a student and young scientist.

Theme / Message

- Curiosity and effort make a scientist. Parents' encouragement shapes a child's future.
- Failure teaches lessons: a loss at the science fair pushed him to do real experiments.

Textbook Exercise Questions

Q.1 How did a book become a turning point in Richard's life?

Ans. His mother gave him 'The Travels of Monarch X'. It opened the world of science for him, and he began tracking butterfly migration and doing experiments.

Q.2 How did his mother help him?

Ans. She encouraged his interests, took him on trips, bought equipment like telescopes and microscopes, and gave him books.

Q.3 What lesson does Ebright learn when he does not win at a science fair?

Ans. He learnt that to win he must do real experiments, not just display things.

Q.4 What experiments and projects does he undertake?

Ans. He studied the viral disease that killed monarch caterpillars; tested viceroy butterflies to show they copy monarchs; and studied bright spots on monarch pupa and found a new insect hormone.

Q.5 What qualities go into the making of a scientist?

Ans. A first-rate mind, curiosity and the will to perform and win for the right reasons.

Q.6 How can one become a scientist? Does it simply involve reading books?

Ans. No. One must observe, think and experiment, and keep trying despite failure.

Q.7 Discuss Ebricht's work in light of cells and DNA.

Ans. His work in biochemistry and molecular biology showed how a cell reads the blueprint of DNA, which controls heredity.

Q.8 Answer the children's questions: DNA fingerprinting, honeybees, raindrops.

Ans. DNA fingerprinting identifies people from a drop of blood or a hair and is used in forensics and parentage. Honeybees identify their honeycomb by chemical trails, memory and direction sense. Rain falls in drops because vapour condenses and droplets form around ice or dust particles.

Board Exam Questions (Important)

Q.1 Write a note on Richard Ebricht's childhood. (100 words)

Ans. Richard was curious from childhood. He collected butterflies and by second grade had all twenty-five species. His mother encouraged him with trips and equipment. The book 'The Travels of Monarch X' made him study migration. His love of nature, hard work and curiosity later made him a great scientist.

Q.2 Why did Richard not win at the science fair? What did he learn?

Ans. He had only displayed frog tissue slides under the microscope. He learnt that real experiments, not neat displays, win.

Q.3 Short answer: In what way was Richard a competitive person?

Ans. He wanted to win, but for the right reasons, to discover new things, not just to get prizes.

Q.4 Value-based: How can parents help children become scientists?

Ans. By encouraging curiosity, giving books and tools, and supporting even failures.

