



SUMMARY-

The Making of a Scientist' is a story about the leading scientist Richard Ebright. He was a curious child right from the beginning years of his life. He had started collecting butterflies in his childhood and by the time he is in second grade, he had already gathered all the 25 species found in his hometown. Also, he collected coins, fossils, and rocks. One day his mother gave him a book named 'The Travel of Monarch X'. This book has been a turning point in life and introduced him to the world of science. He experienced the real science in county science fair and moreover he understood that to win something he needs to do something extraordinary.

Later, for his eighth grade, he selected the assignment of finding the cause of viral sickness that killed almost all the monarch caterpillars every year. He thought that the cause for this could be a beetle, so, he rose caterpillars with the presence of beetles. However, he was wrong. Next year his project for the science fair was testing the theory that viceroy butterflies copy monarchs. His project got the first prize in zoology division and third in county science fair.

In his second year of high school, Richard Ebright research led to his discovery of an unknown insect hormone which led to his new theory on the lives of cells. He tried to find the purpose of tiny golden spots on the back of monarch pupa. This project won first place in a county science fair and a chance to work in Walter Reed Army Institute of research.

As a high school student, he continued his advanced experiment and finally was able to identify hormones chemical structure. One day while looking at the Xray photos of the hormone he got the idea of his new theory that tells cells can read the blueprint of its DNA. Ebright and his roommate constructed the plastic model of a molecule to illustrate the working of DNA. It was a big leap forward and got published in a magazine. He graduated from Harvard with the highest honours.

He has other interest also like public speaking, debate and is also a canoeist and an outdoor person. Also, he was competitive but in good sense and always want to do his best. Moreover, he possesses all the traits of becoming a good scientist. The story teaches us that with perseverance, dedication and hard work any dream is achievable.

Read the extracts given below and answer the questions that follow:

1. So he did and did he ever! Beginning in Kindergarten, Ebright collected butterflies with the same determination that has marked all his activities. He also collected rocks, fossils, and coins. He became an eager astronomer, too. Sometimes star-gazing all night.

- (a) Who is 'he'?
- (b) What more did he collect besides butterflies?
- (c) Find a word from the passage that means the same as 'strong will-power'.
- (d) What did he do at some night?

- (a) He is Richard Ebright, a scientist.
- (b) Besides butterflies, he used to collect fossils, rocks and coins.
- (c) 'Determination'.
- (d) Sometimes he gazed at the stars all night.

2. From the first he had a driving curiosity along with a bright mind. He also had a mother who encouraged his interest in learning. She took him on trips, bought him telescope, microscope, cameras, mounting materials, and other equipment and helped him in many other ways.

- (a) What was the role of his mother in his life ?
- (b) How did she perform her duties ?
- (c) What does the word 'bright' mean here ?
- (d) What did Ebright desire ?

- (a) She observed her child, identified his interests and inclinations and channelized his energies in right direction.
- (b) To help him, she bought him books, took him out on trips, also bought him a telescope, a microscope, cameras, mounting materials and other equipments.
- (c) 'curious and intelligent'.
- (d) Ebright had a driving curiosity.

3. He grew cells from a Monarch's wing in a culture and showed that the cells would divide and develop into normal butterfly wing scales only if they were fed the hormone from the gold spots.

- (a) What did Ebright find out after working on hormone?
- (b) What conclusion did he make?
- (c) Write the word that means the same as 'ordinary'.

(d) Where did he grow cells?

(a) The study of insect hormones helped him in giving a new theory on the life of cells.

(b) He concluded that cells grew from monarch wings would divide and develop into normal butterfly wing scale only if they were fed the hormone from the gold spots.

(c) 'Normal'.

(d) He grew cells from a monarch's wing in a culture.

4. Richard Ebright has been interested in Science. Since, he first began collecting butterflies—but not so deeply that he hasn't time for other interests. Ebright also became a champion debater and public speaker and a good canoeist and all-around outdoors person. He is also an expert photographer, particularly of nature and scientific exhibits.

(a) Did Ebright collect butterflies just as a hobby? What special trait of Ebright shown by it?

(b) Besides science, what other interests did Richard Ebright pursue?

(c) What does a 'canoeist' mean?

(d) What other qualities does Ebright possess?

(a) Ebright collected butterflies out of curiosity to seek information. It shows his keen observing powers, perseverance, patience and self-discipline.

(b) Besides being expert in science, he was also a good debater, canoeist and expert photographer.

(c) A canoeist is a person who paddles a canoe, i.e. a light boat.

(d) Ebright is also an expert photographer.

SHORT ANSWER QUESTIONS

Q1) How did a book become a turning point in Richard Ebright's life?

After Richard had collected all the 25 species of butterflies that were found in his surroundings, he thought that it would be an end to butterfly collection when his mom bought him a book named 'The Travels of Monarch X' which told him about how butterflies migrated to Central America. This book aroused an interest in him for exploring more of what was to come and started studying more about monarch butterflies.

Q2) How did his mother help him?

His mother played a turning role in the life of the scientist as she used to buy him telescopes, microscopes, cameras, mounting equipment and used to try to help him by getting him things to learn in the evening when he used to be free. She also used to take him out on field trips and the book 'The Travels of Monarch X' was also bought by her. So we can say that his mother played a very important role in the making of what he was.

Q3) What lesson does Ebright learn when he does not win anything at a science fair?

He learnt that just by showing neat and clean simple slides won't make him win anything but the actual experiment that he will perform will help him win the prize at any fair.

Q4) What experiments and projects does he then undertake?

He did an experiment to see the cause of the viral disease that kills nearly all the monarchs after a few years and also took up a project to prove that the viceroy butterflies copy monarchs to survive by behaving like them.

Q5) What are the qualities that go into the making of a scientist?

According to the chapter, there are three qualities that a person needs to have to be a scientist. Firstly, a first - rated mind, secondly, curiosity and thirdly, the will to win for the right reasons.

LONG ANSWER QUESTIONS:

1. Richard's mother had a great influence on him. Discuss.

OR

Discuss the role of Ebright's mother in making him a scientist.

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.

2. Ebright's study of monarch pupas had a far reaching impact. Elaborate.

For a long time the scientific community had regarded the gold spots on a monarch pupa as purely ornamental. But Dr Urquhart did not believe it. Nor did Richard. He started his experiments on the monarch pupa. He built a device with the help of a friend. This led to the discovery of a hormone. Richard proved that the hormone was necessary for the growth of the butterfly. This discovery got him many honours. Also, it led to another important study. He began working on how cells read their DNA. DNA is the carrier of heredity and is called the blueprint of life. His theory could find answers to many cancers and diseases.

3. Richard Ebright displayed a well-rounded personality. Do you agree? Elucidate in the context of the given text.

Richard's genius was obvious by the time he was in his second grade. He managed to collect all twenty-five species of butterflies around his hometown and classify them. He also loved to collect coins, fossils and rocks. Science was not his only passion. He was an active member of his school's oratory club and model United Nations club and was an effective debater and a public speaker. He loved photography as well.

He was an enthusiastic canoeist and an all-around outdoors person. Learning was easy for him. So he found it simple to devote time and energy to many other interests. He became a champion in whatever he did. He believed in the spirit of competition to win. But, he did not wish to defeat others just to win. He wanted to win to do his best. Thus, he displayed a well-rounded personality.

4. Dr Urquhart contributed significantly to Ebright's growth as a scientist. Explain

Richard had become bored with collecting butterflies. His mother got him a book on the migration of butterflies. Richard came in contact with Dr Urquhart through the book. Dr Urquhart directed him to study the migration pattern of butterflies.

When he did not win any prize in the science fair in seventh grade, he again wrote to Dr Urquhart to guide him. The scientist gave him many suggestions for new experiments. Richard performed these experiments throughout his high school and won many prizes. Later, he worked on why gold spots are found on a monarch pupa, motivated by Dr Urquhart. It led to the discovery of a new hormone. The discovery of this new hormone further led to an important theory. The theory was about how cells read their DNA. In this way Dr Urquhart proved to be his true mentor.

5. What are the values required to become a successful scientist like Richard Ebright? Elaborate with reference to the lesson 'The Making of a Scientist'.

Curiosity to know more and a motivation to find reasons for existence of anything or any phenomena are necessary for becoming a successful scientist. The urge to know more develops the scientific aptitude in a person. At a very young age, Ebright became competitive by participating in various county fairs. He never lost hope and kept on trying to do better. In addition to curiosity and motivation, Ebright displayed the qualities of hard work, sincerity, determination and patience. He also accepted failure and success in the right spirit. Thus, he became a successful scientist.