THE MAKING OF A SCIENTIST

Curious Beginnings:

This story is about Richard Ebright, a scientist who loved exploring since he was a little kid. He collected butterflies, coins, fossils, and rocks. His mom gave him a book called 'The Travels of Monarch X,' which ignited his passion for science.

Learning from Nature:

Richard realized that to achieve something special, he needed to do something extraordinary. In a science fair, he experimented with monarch caterpillars and viceroy butterflies, earning him recognition and prizes.

High School Discoveries:

In high school, Richard's experiments led to big discoveries. He found a new insect hormone and unraveled the mystery of tiny golden spots on monarch pupae. He even came up with a new theory about how cells read the blueprint of DNA.

A Big Leap:

As he continued his studies, Richard created a plastic model to explain how DNA works. This idea was a big hit and was published. He graduated from Harvard with top honors, showing that hard work pays off.

Beyond Science:

Richard wasn't just about science. He loved public speaking, debate, and outdoor activities like canoeing. He was competitive but always aimed to do his best.

Lesson Learned:

The story teaches us that if you work hard and stay dedicated, you can achieve your dreams. Richard Ebright's journey from a curious kid to a successful scientist is proof that with perseverance, anything is possible.

Extract Based Questions:

Q1: So he did, and did he ever! Beginning in kindergarten, Ebright collected butterflies with the same determination that has marked all his activities.

(a) What does 'he did' in the extract refer to?

Ans: 'He did' refers to Richard's habit of collecting various things.

(b) What else did he collect other than butterflies?

Ans: He collected fossils, coins, and rocks other than butterflies.

(c) Find a word from the extract which means 'resoluteness'

Ans: Determination' is the word from the extract which means 'resoluteness! **(d) What is the opposite of 'Beginning'?**

Ans: Its opposite is 'Ending'.

Q2: He would catch a female monarch, take her eggs, and raise them in his basement through their life cycle

(a) Who is 'he' in this extract?

Ans: 'Richard Ebright is 'he' in this extract.

(b) Why does he raise butterflies?

Ans: He raised butterflies to study their migration pattern.

(c) Find a synonym for the word 'rear" from the extract given above.

Ans: 'Raise' is the synonym of'rear' from the extract.

(d) What part of speech is 'them'?

Ans: It is a pronoun

Top 10 PYQs:

Short Answer Questions (40-50 words each)

1.Why did Richard lose interest in tagging butterflies?

Answer: Richard raised thousands of butterflies, tagged them and released them to study their migration. But soon, he lost interest because only two of his tagged butterflies were returned to him and they had travelled only seventy-five miles.

2. Discuss the role of Ebright's mother in making him a scientist. [CBSE 2011]

Answer: Richard's mother played a crucial role in making him a great scientist. She would take him on trips to encourage learning.

He was an only child. After his father died, his mother made him the focus of her life. She would buy him all kinds of scientific equipments, including microscopes, telescopes . After dinner, she would give 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 for guidance for her son. The scientist mentored Richard and providing guidance. Thus, his mother shaped him into an extraordinary scientist.

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

Answer: For a long time the scientific community had regarded the bright spots on a monarch pupae as purely ornamental. But Dr Urquhart did not believe it. Nor did Richard. He began his experiments on the monarch pupae. 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 honors. Also, it led to another important study. He began working on how cells read their DNA. DNA carrier of hereditary information and is often referred to as His theory could find answers to many cancers and diseases.

4. Richard Ebright displayed a well-rounded personality. Do you agree? Elucidate in the context of the given text. [CBSE 2016]

Answer: Richard's genius was obvious by the time he was in 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-tounded personality.

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

Answer: Richard had grown bored of collecting butterflies. His mother got him a book on the migration of butterflies. Through this book, Richard came into contact with Dr. Urquhart, who directed him to study butterfly migration patterns. When Richard did not win any prize at the science fair in seventh grade, he wrote to Dr. Urquhart again for guidance. The scientist provided him with many suggestions for new experiments, which Richard conducted throughout high school, winning many prizes. Later, motivated by Dr. Urquhart, he studied the presence of bright spots on a monarch pupa. This led to the discovery of a new hormone, which further contributed to an important theory on how cells read their DNA. Since DNA is the blueprint of life, this theory had far-reaching implications. In this way, Dr. Urquhart proved to be his true mentor.

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

Answer: Curiosity and motivation to explore the reasons behind various phenomena are essential for becoming a successful scientist. The urge to know more develops a 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 striving to improve. 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. These qualities helped him become a successful scientist.

7. Although Richard did not win anything at the science fair it was a stepping stone for his success. Concerning the story 'The Making of a Scientist' of the above statement, give your comments on whether competitions are for winning sake or to give your best at work.

Answer: It is true that everyone wants to be a winner. Everyone has a basic desire to reach the top. To achieve this, many competitions are organized at various levels. However, we must accept that not everyone can be a winner. Participation is more valuable than winning. Competitions should encourage individuals to give their best effort

rather than focus solely on victory. Participants should work hard to perform at their best, and even if they do not win, they should use the experience as a learning opportunity.

8. Why did viceroy butterflies copy monarchs?

Answer: Viceroy butterflies copy monarchs because monarchs do not taste good to birds. Viceroy butterflies on the other hand taste good to birds. So, the more they look similar to monarchs, the less likely they are to become a bird's prey. Thus they protect themselves.

9. Why did Richard Ebright give up tagging butterflies?

Answer: *Richard Ebright lost interest in tagging butterflies as it was tedious and there was not much feedback. He could recapture only two butterflies in all the time he did it and they were not more than seventy-five miles away from where he lived..*

10. How did Richard Ebright's mother help him to become a scientist?

Answer: Ebright's mother was his only companion. She used to encourage the child to learn whatever he wanted to learn. She took him on trips and brought him telescopes, microscopes, cameras, mounting materials, and other such equipment.