Gregor Mendel: The Father of Genetics

Have you ever wondered why one person in your family has freckles, another has curly hair, while someone else might have straight hair or blue eyes? These differences are explained by genetics—the study of heredity and variation. To understand this, we need to look at how genetic information is passed from one generation to the next. The story begins with an Austrian monk known as the "father of genetics," **Gregor Mendel**.

Early Life and Studies

Mendel was born in 1822 in what is now the Czech Republic. From a young age, he was interested in science and nature. Although he joined a monastery, he did not give up his curiosity about the natural world. Instead, the monastery gave him opportunities to study further. Mendel attended the University of Vienna, where he studied physics, botany, and natural sciences. His background in mathematics later helped him analyse his experiments carefully, something other scientists of his time did not do.

Mendel's Experiments

Mendel chose to study pea plants as his main research subject. This was a clever decision because pea plants grow quickly, produce many seeds, and can either self-pollinate or cross-pollinate with other plants. These qualities made them perfect for controlled experiments. Mendel decided to focus on **seven traits** of pea plants: height, seed colour, seed shape, pod colour, pod shape, flower position, and flower colour.

He performed thousands of experiments by selectively breeding plants with different traits. For example, he crossed a pure yellow-seed pea plant (homozygous) with a pure green-seed pea plant (homozygous). The first generation of offspring (F1) were all yellow, even though they carried one yellow allele and one green allele (heterozygous). When he let these F1 plants reproduce, the next generation (F2) showed a consistent pattern: three plants with yellow seeds for every one with green seeds.

Mendel's Discoveries

By carefully counting and analysing the results, Mendel reached several important conclusions:

1. **Traits are controlled by "factors" (now called genes)** that are passed from parents to offspring unchanged.
2. **Each individual inherits one factor from each parent**, meaning two versions exist for every trait.
3. **Some factors are dominant, while others are recessive.** This explains why a trait may disappear in one generation and reappear in the next.
4. The difference between **genotype (genetic makeup)** and **phenotype (physical appearance)** is essential for understanding heredity.

Mendel's Legacy

In 1866, Mendel published his groundbreaking work *Experiments in Plant Hybridization*. Unfortunately, his discoveries were ignored by the scientific community during his lifetime. It was not until around 1900—over thirty years later—that other scientists rediscovered his findings and realised their importance. Today, Mendel's principles form the **foundation of modern genetics**, influencing fields as diverse as biology, medicine, agriculture, and biotechnology.

True / False / Not Given

Do the following statements agree with the information in the text? Write:
TRUE if the statement agrees with the text
FALSE if the statement contradicts the text
NOT GIVEN if there is no information on this

1. Mendel carried out his experiments only after he became a teacher at the University of Vienna. _____
2. He chose pea plants because they could reproduce in more than one way. ____
3. Mendel studied exactly ten traits of pea plants. _____
4. His background in mathematics helped him analyse his results. ____
5. Mendel's discoveries were immediately accepted by scientists in the 19th century. ___
6. Today, Mendel's work is considered important in many scientific fields. ____

Sentence Completion

Complete the sentences with **NO MORE THAN THREE WORDS** from the passage.

7. Mendel is often called the _____.

8. The first generation of hybrid pea plants all had _____.

9. A genotype refers to the _____ of an organism.

10. Mendel's work was ignored until _____.