Name: _____ **Date:** _____

Gregor Johann Mendel

Mendel, the father of genetics, did not receive credit for his discoveries until after his death. Today, Mendel is recognized as a pioneer for his insights into the mechanics of heredity.

Early Childhood

Johann Mendel, the son of a farmer, was born in 1822 in Austria. Mendel loved nature. He worked alongside his father caring for plants in their fruit tree orchard and garden.

Mendel's mother hoped her young son would become a teacher or priest. His father anticipated he would take over the farm. The future would hold many careers for Mendel - teacher, priest, and scientist.

Educating Mendel

Mendel learned a great deal both in and out of the classroom. Home provided a natural setting to understand plants and the value of hard work. However, Mendel also excelled in school. A teacher recommended that Mendel continue his education.

His father hesitated, but his mother supported the idea. So, eleven-year-old Mendel went to school nearly 13 miles away. Afterward, he went on to high school. Tuition was a strain. To save money, his parents rationed the food they sent him in order to pay for his schooling.

In 1838, Mendel's father was injured and unable to work. Mendel became a tutor to earn money to study at Olmutz Philosophical Institute. In 1841, Mendel's father sold the farm to his daughter's husband. The proceeds were divided among the children. Mendel's younger sister shared her portion to pay for his education.

Mendel met Professor Franz who was both a scientist and monk. After finishing his two years at Olmutz, Mendel wanted to attend the university. Professor Franz suggested joining a monastery in Brunn to help relieve Mendel's financial stress. In 1843, Johann joined the Augustinian monastery, became a priest, and took the name Gregor.

Two Peas in a Pod

In a monastery setting, one would think that Mendel would be secluded from the outside world. However, monasteries were centers of learning. The monastery suited Mendel well. It was here that he conducted his famous pea experiments. Mendel's approach to explaining his results was unique. He used math to defend what occurred naturally. This was a novel approach in the field of biology.

He started his experiments in 1856 and grew over 24,000 plants during the next eight years. His garden was small to house so many plants and he was forced to hook them up onto anything he could find. He fondly referred to his plants as his "children."

Mendel discovered that traits do not blend, but rather there are dominant and recessive features. His tireless work led to the creation of two important principles—the Law of Segregation and The Law of Independent Assortment.

Mendel's paper was published in 1866, but most ignored it. It was not until 1900 that his work gained respect, as scientists used microscopes to understand cells and chromosomes.

A kind Mendel

In addition to conducting experiments, Mendel was a teacher. He was unable to become a permanent teacher after failing the teacher's exam several times, but remained a temporary high school teacher for many years.

In 1867, he was elected abbot. As monastery demands increased, he was forced to give up teaching. He gave his last month's teaching pay to the three poorest boys in his class. With an abbot's salary, he also repaid his younger sister by paying for his nephews' education including medical school for two of the boys.

Mendel, an avid weather lover, later became a weather watcher and record keeper. Mendel died in 1884 at the age of 61. The Mendel Museum of Genetics at the Abbey of St. Thomas in Brno in the Czech Republic is a tribute to Mendel and his scientific achievements.

The Story of Gregor Mendel

Use the following words to fill in the following passage: punnett, phenotype, recessive trait, Gregor Mendel, genotype, traits, genes, alleles, dominant trait, and codominance.

Our story begins in a monastery in Austria in the 1800's. _____, the "father of genetics," conducted many experiments on his garden plants. He was particularly interested in studying pea plants because of their short growing time and many varieties. Mendel noticed that certain _____ in pea plants were passed on from parents to offspring. He also noticed that sometimes a trait seemed to disappear in between generations. He wanted to find out why.

After many experiments, in which he crossed plants with different traits, he noticed similar results. He noticed that sometimes trait showed up and other times they did not. For example, when he crossed a true-breeding purple-flowered plant with a true-breeding white-flowered plant, the first generation of plants were all purple. White flowers had disappeared! Mendel called the trait that always showed up the _____. He called the trait that did not show up the _____. When he allowed the plants of the first generation to self-pollinate, the next generation had 75% purple flowers and 25% white flowers.

He concluded that each plant had two sets of instructions for each trait, one from each parent. Today we know that _____, found on chromosomes, determine traits. Each gene has two or more different forms called _____.

When studying genetics today, we can set up _____ squares. The squares contain the possible allele combinations that might occur when crossing two pea plants. The inherited combination of alleles (PP, pp or Pp) is called the _____. The organism's appearance, such as flower color is called the _____.

It was later discovered that in certain organisms neither trait was dominant and a mixing or blending of the dominant and recessive trait occurred. In this case, both traits are present. This is called _____.

In 1864, Mendel published his results, but unfortunately it wasn't until after he died that he was recognized for his work on genetics.