

Name \_\_\_\_\_

## Gregor Mendel: The Father of Modern Genetics

### Short Answer Key

1. Gregor Mendel selected pea plants with distinct traits, such as flower color, seed shape, and pod color, for his experiments.
2. The Law of Segregation states that individuals have two alleles for each trait, and these alleles segregate during the formation of reproductive cells. It ensures that each offspring inherits one allele from each parent. This law is significant because it explains how genetic traits are inherited from one generation to the next.
3. The Law of Independent Assortment states that the inheritance of one trait is independent of the inheritance of another trait. An example is the inheritance of flower color and seed shape in pea plants. The color of flowers (e.g., purple or white) and the shape of seeds (e.g., round or wrinkled) follow this law because they segregate independently during reproduction.
4. Mendel's work was eventually recognized as groundbreaking because it provided a systematic and quantifiable approach to the study of inheritance, offering three fundamental laws that explained how traits are inherited. His work laid the foundation for modern genetics and was rediscovered and appreciated by later scientists.
5. Gregor Mendel's work has had a profound influence on the field of genetics by providing a clear framework for understanding how traits are inherited. His laws of inheritance are still relevant today and have paved the way for further advancements in genetics research, including the discovery of DNA and the development of molecular biology.

