

# Genetics Information Sheet

1. What is *Genetics*? *The Study of how traits are transferred from one generation to the next.*
2. Who is the "Father of *Genetics*"? *Gregor Mendel, an Austrian monk who noticed predictable trends in pea plants he grew.*
3. What material carries the information to make and run you? *DNA*
4. What do you call one large bundle of this information? *A chromosome*
5. Where did you get this information? How much?  *$\frac{1}{2}$  from each parent.*
6. What is a *gene*? *A small section of 1 chromosome that contains the instructions for producing 1 protein.*
7. What is a *trait*? *An inherited characteristic*
8. What is an *allele*? *One of the possible variations of a trait.*
9. What do you call the process of mixing the genetic information of two organisms to form a unique offspring? *Sexual reproduction / fertilization*
10. What is the biological benefit of this process? *Results in unique and possible beneficial combinations of traits. Offspring have chance to improve.*
11. What are some drawbacks to this process? *Complicated process results in more mistakes. Most result in miscarriage. Some result in birth defects.*
12. There are 3 rules of genetics:
  - Law of dominance:** *When an organism is heterozygous for a pair of traits, only the dominant trait can be seen in the offspring*
  - Law of segregation:** *Factors that occur in pairs are separated from each other during gamete formation and recombined during fertilization*
  - Law of Independent Assortment:** *During meiosis, genes for different traits are separated and distributed to gametes independently of one another*
12. What is a *Punnet Square*? *A visual way of predicting the offspring of two parents.*