

1. **Heredity**—the passing of physical characteristics from parents to offspring
2. **Trait**—a characteristic that an organism can pass on to its offspring through its genes.
3. **Genetics**—the scientific study of heredity
4. **Mendel**—The Father of Genetics. Used pea plants to study the way traits are passed from parent to offspring. He was the first to use mathematics of probability to explain heredity.
5. **Gene**—a certain section of DNA on a chromosome, contains the set of instructions for each characteristic donated by the parent of the offspring. They control an organism's form and function.
6. **Allele**—alternate form of a gene for a trait; two or more forms of the same gene, they may be dominant or recessive.
7. **Dominant trait**—stronger trait; covers up the recessive trait, the trait that always appears in first-generation offspring.
8. **Recessive trait**—weaker trait; covered up by the dominant trait, the trait that seems to recede in the background in first-generation offspring. Ex: sickle cell anemia
9. **Probability**—the mathematical chance that an event will occur.
10. **Punnett Square**—a tool to predict the chances of a trait by using the allele combinations.
11. **Heterozygous**—an organism that has 2 different alleles for a trait.
12. **Homozygous**—an organism that has 2 identical alleles for a trait.
13. **Genotype**—the genetic characteristic, the organism's genetic makeup.
14. **Phenotype**—the physical characteristic, how your genetic makeup makes you look.
15. **Chromosomes**—place where genes are found
16. **Meiosis**—takes place in sex cells, the number of chromosomes is reduced by half. Four sex cells produced.
17. **Base Pair**—these 4 nitrogen bases make up part of the DNA molecule. Bases are Adenine, Thymine, Cytosine, and Guanine.
18. **Franklin**—discovered that DNA was two chains of molecules in spiral form.
19. **Watson and Crick**—first to make a model of the structure of DNA.
20. **DNA**—genetic material of an organism, Deoxyribonucleic Acid, chemical that contains the instructions for cells to make the necessary protein. It has a structure like a twisted ladder made up of nucleotides.
21. **Double Helix**—The shape of the DNA molecule (also called a twisted ladder) and it is made up of sugar phosphate molecules.
22. **Mutation**—permanent change in a gene or chromosome, changes the appearance or function of the organism.
23. **Nitrogen Bases**—four kinds of bases that make up the rungs of DNA. Adenine, Guanine, Cytosine, and Thymine.
24. **Sex-linked genes**—a gene that is carried on the X or Y chromosome.
25. **Selective Breeding**—the process of selecting a few organisms with desired traits to serve as parents of the next generation.
26. **Human Genome Project**—Scientists identified the DNA sequence of every gene in the human genome. Genome is all of the DNA in one cell of an organism.
27. **Carrier**—a person who has one recessive allele for a trait and one dominant allele. Carrier can pass the recessive allele on to his or her offspring. In sex-linked traits, only females can be carriers.
28. **Genetic Engineering**—experimenting with biological and chemical methods to change the arrangement of DNA that makes up a gene can be used to genetically alter plants, manufacture proteins, and repair damaged genes.
29. **Stem Cell**—an unspecialized cell that gives rise to a specific specialized cell, such as a blood cell.
30. **Sexual reproduction**—a reproductive process that involves two parents that combine their genetic material to produce a new organism, which differs from both parents.
31. **Asexual reproduction**—a reproductive process involves only one parent and produces offspring that are identical to the parent.
32. **Budding**—a form of asexual reproduction of yeast in which a new cell grows out of the body of a parent.
33. **Haploid**—a cell with half the original number of chromosomes