

Basic Genetic Concepts & Terms

Genetics: what is it?

- What is genetics?
 - “Genetics is the study of **heredity**, the process in which a parent passes certain **genes** onto their children.”
(<http://www.nlm.nih.gov/medlineplus/ency/article/002048.htm>)
- What does that mean?
 - Children **inherit** their biological parents’ genes that express specific **traits**, such as some physical characteristics, natural talents, and genetic disorders.

Word Match Activity

Match the genetic terms to their corresponding parts of the illustration.

- **base pair**
- **cell**
- **chromosome**
- **DNA**
(Deoxyribonucleic Acid)
- **double helix***
- **genes**
- **nucleus**

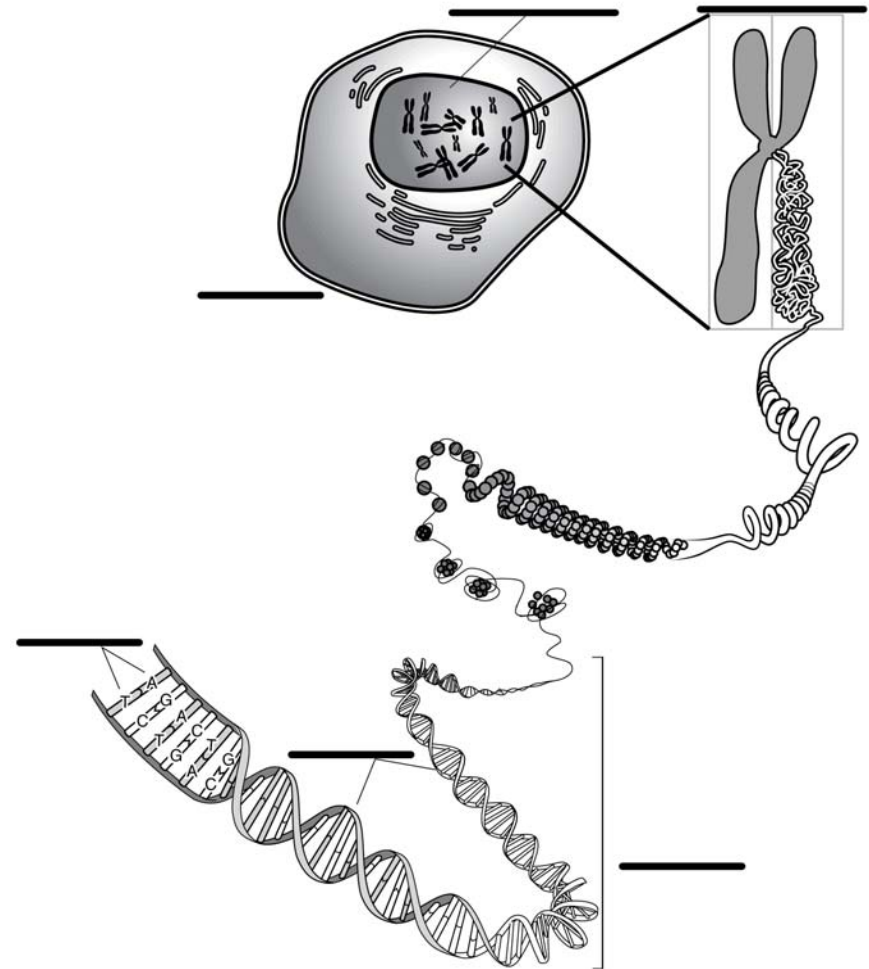


Illustration Source: Talking Glossary of Genetic Terms <http://www.genome.gov/glossary/>

Word Match Activity

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- cell
- chromosome
- DNA
(Deoxyribonucleic Acid)
- double helix*
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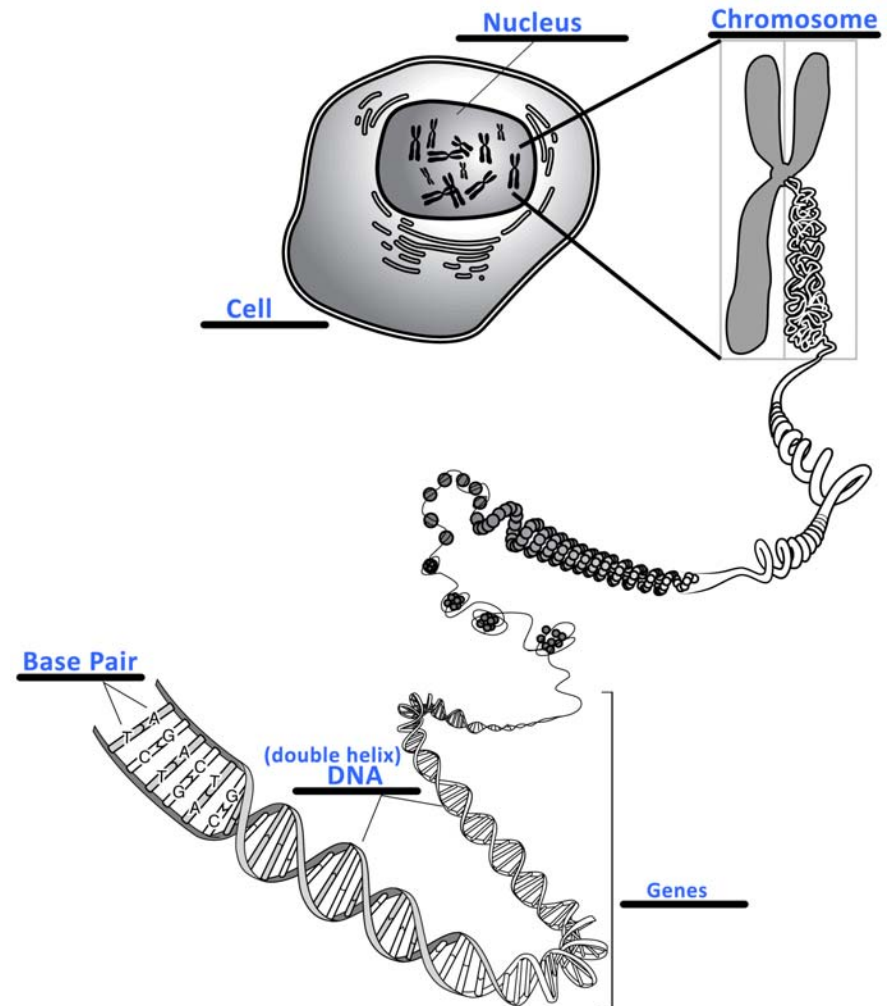


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Genetic Concepts

- H _____ describes how some traits are passed from parents to their children.
- The traits are expressed by g_____, which are small sections of DNA that are coded for specific traits.
- Genes are found on ch_____.
- Humans have two sets of ____ (hint: a number) chromosomes—one set from each parent.

Genetic Concepts

- **Heredity** describes how some traits are passed from parents to their children.
- The traits are expressed by **genes**, which are small sections of DNA that are coded for specific traits.
- Genes are found on **chromosomes**.
- Humans have two sets of **23** chromosomes—one set from each parent.

Genetic Terms

Use library resources to define the following words and write their definitions using your own words.

- **allele:**
- **genes:**
- **dominant :**
- **recessive:**
- **homozygous:**
- **heterozygous:**
- **genotype:**
- **phenotype:**
- **Mendelian Inheritance:**

Mendelian Inheritance

- The inherited traits are determined by genes that are passed from parents to children.
- A child inherits two sets of genes—one from each parent.
- A trait may not be observable, but its gene can be passed to the next generation.

Mendelian Inheritance

Each person has 2 copies of every gene—one copy from mom and a second copy from dad. These copies may come in different variations, known as **alleles**, that express different traits.

For example, 2 alleles in the gene for freckles are inherited from mom and dad:

- allele from mom = has freckles (F)
- allele from dad = no freckles (f)
- child has the inherited gene pair of alleles, **Ff** (F allele from mom and f allele from dad).