

Pedigree Charts

The family tree of genetics

Overview

- I. **What is a pedigree?**
 - a. **Definition**
 - b. **Uses**
- II. **Constructing a pedigree**
 - a. **Symbols**
 - b. **Connecting the symbols**
- III. **Interpreting a pedigree**

What is a Pedigree?

- A pedigree is a chart of the genetic history of family over several generations.
- Scientists or a genetic counselor would find out about your family history and make this chart to analyze.

Constructing a Pedigree

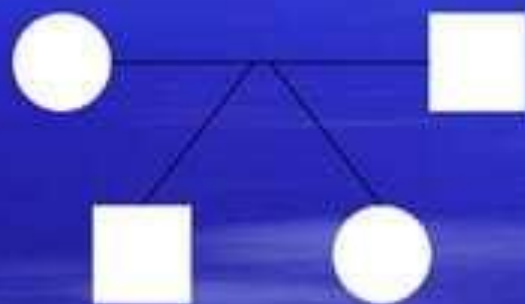
■ Female ●

■ Male ■

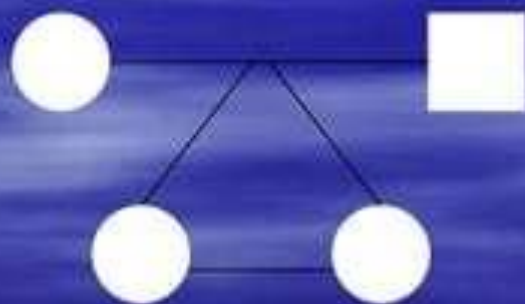
Connecting Pedigree Symbols

Examples of connected symbols:

- Fraternal twins



- Identical twins

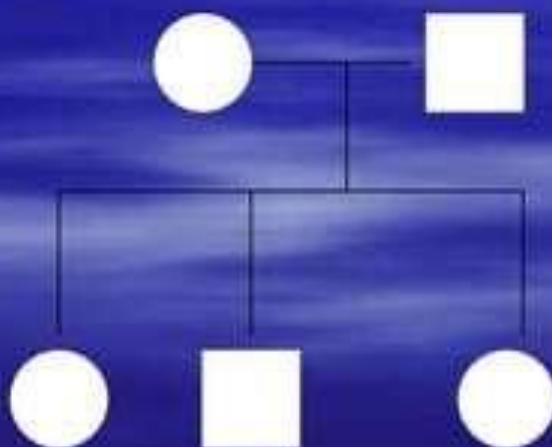


Connecting Pedigree Symbols

Examples of connected symbols:

■ Married Couple ● — ■

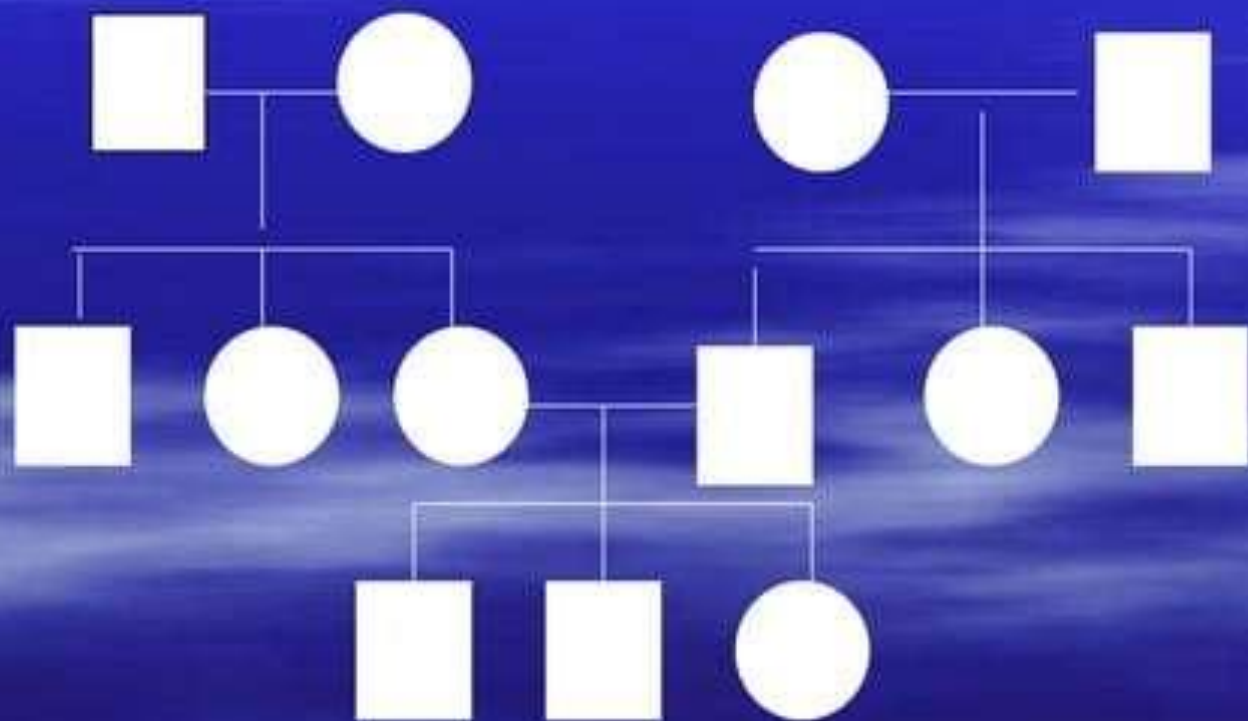
■ Siblings







A pedigree diagram illustrating siblings. At the top, a white circle (female) and a white square (male) are connected by a horizontal line. A vertical line descends from the center of this horizontal line to a horizontal line. From this horizontal line, three vertical lines descend to three symbols: a white circle (female) on the left, a white square (male) in the middle, and a white circle (female) on the right. This structure represents a family unit with three children.

Example

- What does a pedigree chart look like?



Symbols in a Pedigree Chart

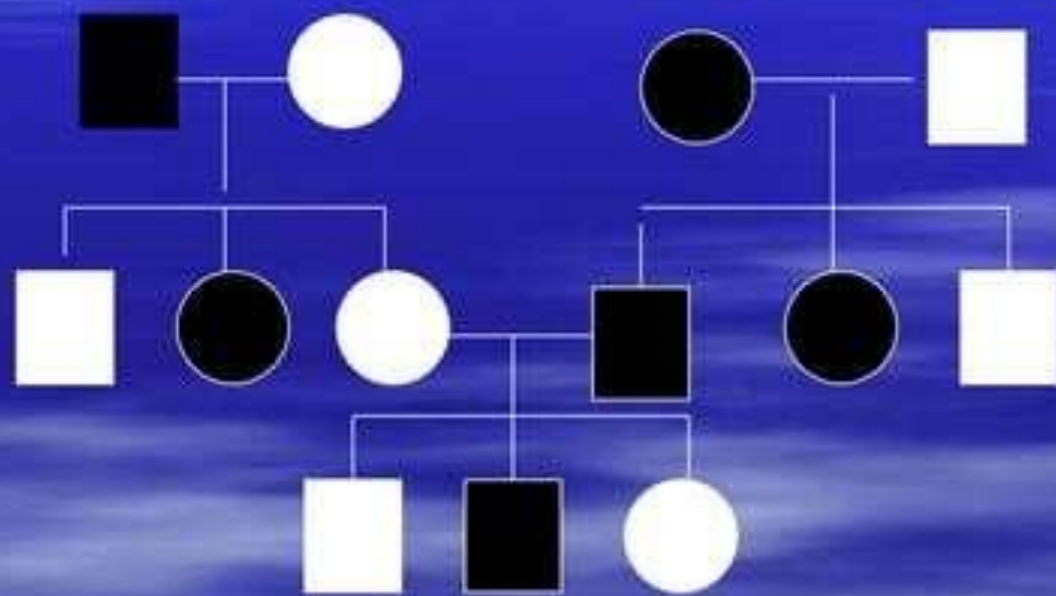
- Affected 
- X-linked 
- Autosomal carrier 
- Deceased 

Interpreting a Pedigree Chart

1. Determine if the pedigree chart shows an autosomal or X-linked disease.
 - If most of the males in the pedigree are affected the disorder is X-linked
 - If it is a 50/50 ratio between men and women the disorder is autosomal.

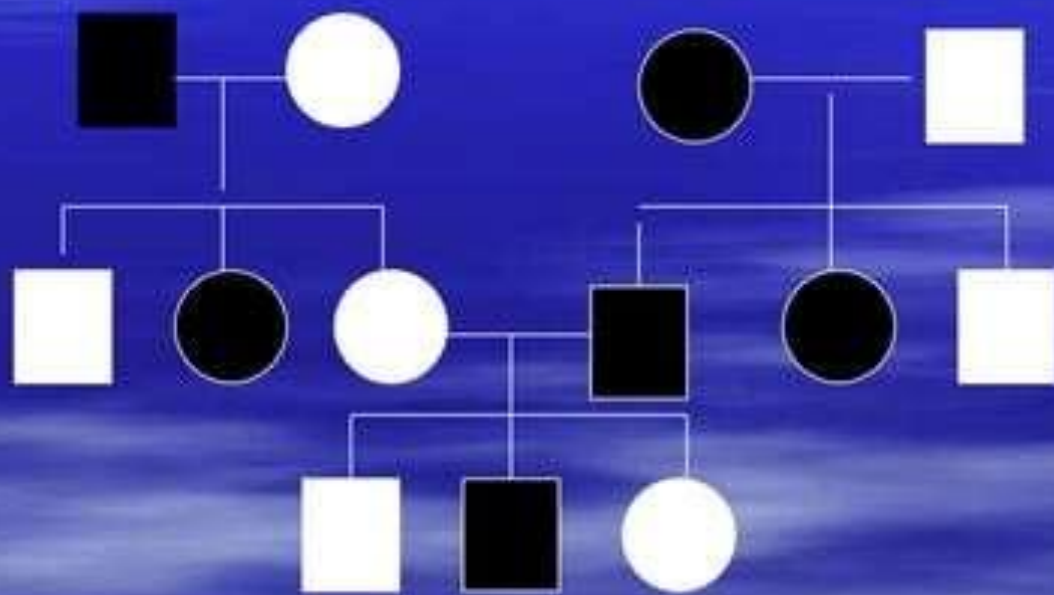
Example of Pedigree Charts

- Is it Autosomal or X-linked?



Answer

- Autosomal

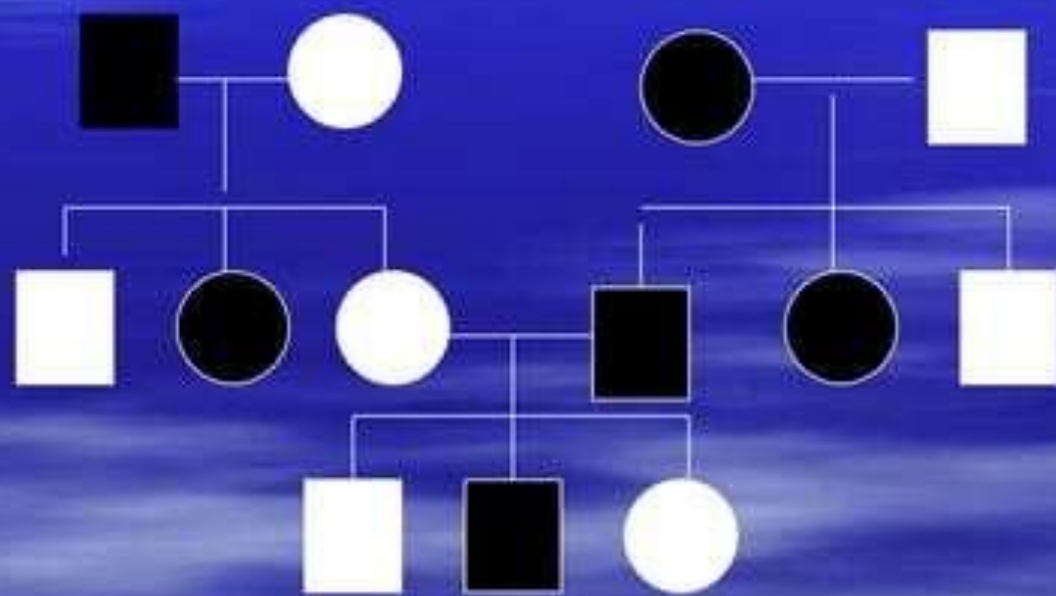


Interpreting a Pedigree Chart

1. Determine whether the disorder is dominant or recessive.
 - If the disorder is dominant, one of the parents must have the disorder.
 - If the disorder is recessive, neither parent has to have the disorder because they can be heterozygous.

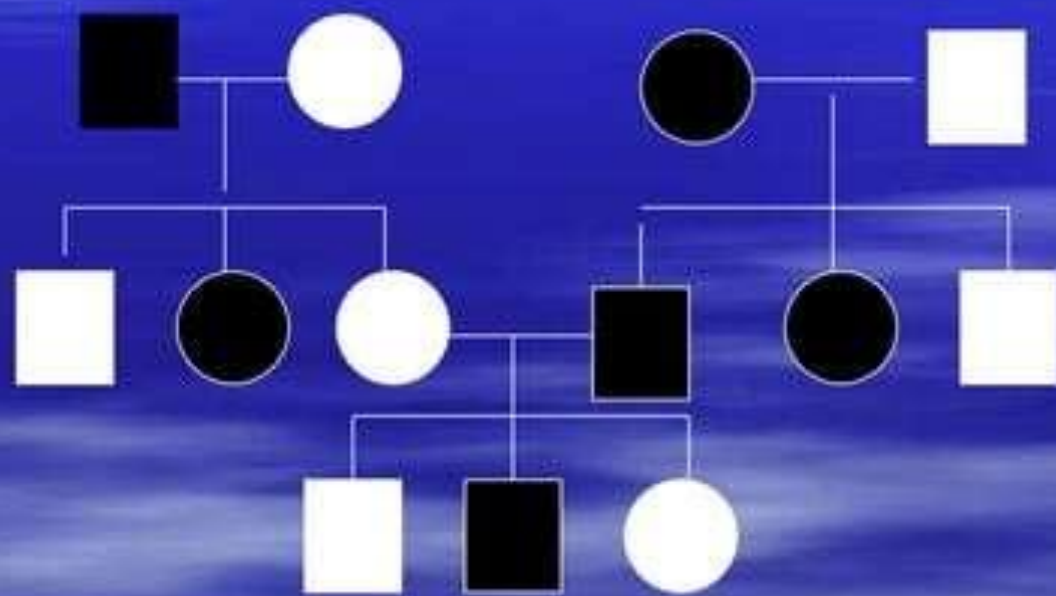
Example of Pedigree Charts

- Dominant or Recessive?



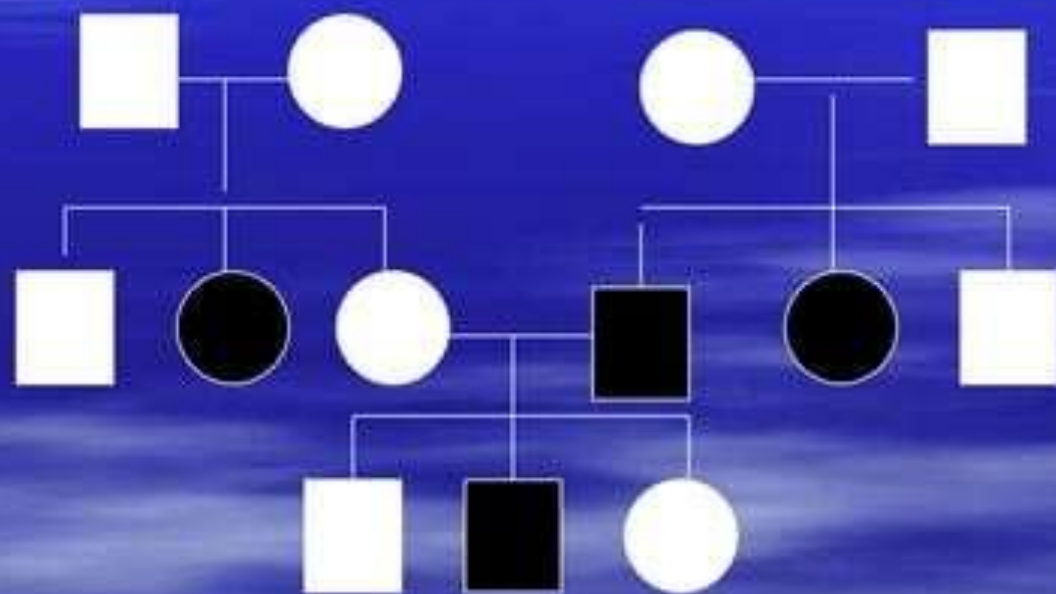
Answer

- Dominant



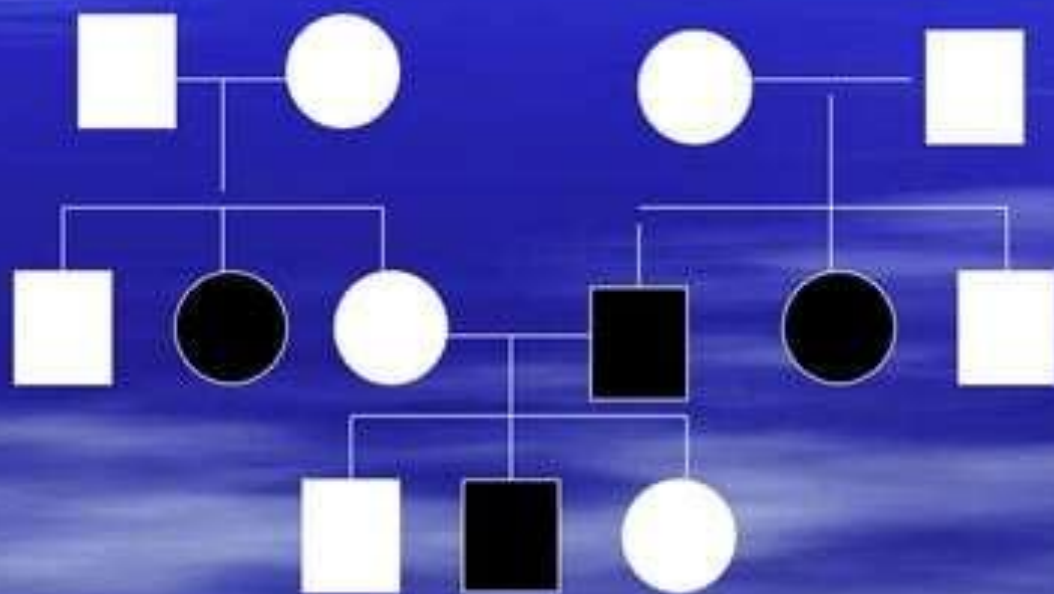
Example of Pedigree Charts

- Dominant or Recessive?



Answer

- Recessive



Summary

- Pedigrees are family trees that explain your genetic history.
- Pedigrees are used to find out the probability of a child having a disorder in a particular family.
- To begin to interpret a pedigree, determine if the disease or condition is autosomal or X-linked and dominant or recessive.