

# Genetics Pedigree Worksheet

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## Part 1: Building a Foundation

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**What symbol is used to represent a male in a pedigree chart?**

*Hint: Think about the shapes used in pedigree charts.*

- Circle
- Square
- Triangle
- Diamond

**What symbol is used to represent a male in a pedigree chart?**

*Hint: Think about the common symbols used in pedigree charts.*

- Circle
- Square
- Triangle
- Diamond

**Which of the following are characteristics of an autosomal dominant inheritance pattern? (Select all that apply)**

*Hint: Consider how traits are passed through generations.*

- Trait skips generations
- Affected individuals have at least one affected parent
- Both males and females are equally likely to be affected
- Only males are affected

**Which of the following are characteristics of an autosomal dominant inheritance pattern? (Select all that apply)**

*Hint: Consider the traits that appear in every generation.*

- Trait skips generations
- Affected individuals have at least one affected parent
- Both males and females are equally likely to be affected
- Only males are affected

**Explain the difference between genotype and phenotype.**

*Hint: Consider the genetic makeup versus the observable traits.*

**Explain the difference between genotype and phenotype.**

*Hint: Consider how genetic makeup differs from observable traits.*

**List the symbols used in a pedigree chart and their meanings.**

*Hint: Think about the common shapes and what they represent.*

1. What does a circle represent?

2. What does a square represent?

3. What does a filled shape indicate?

## Part 2: Understanding and Interpretation

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**In a pedigree chart, if a trait is expressed in every generation, what type of inheritance is most likely?**

*Hint: Consider how traits are passed down through generations.*

- Autosomal recessiv
- Autosomal dominant
- X-linked recessiv
- mitochondrial

**In a pedigree chart, if a trait is expressed in every generation, what type of inheritance is most likely?**

*Hint: Consider the patterns of inheritance that do not skip generations.*

- Autosomal recessiv
- Autosomal dominant
- X-linked recessiv
- Mitochondrial

**Which of the following statements are true about X-linked recessiv inheritance? (Select all that apply)**

*Hint: Think about how traits are passed from parents to offspring.*

- More males are affected than females
- Affected fathers pass the trait to all daughters
- Trait can skip generations
- Affected mothers pass the trait to sons

**Which of the following statements are true about X-linked recessiv inheritance? (Select all that apply)**

*Hint: Think about the patterns of inheritance specific to X-linked traits.*

- More males are affected than females
- Affected fathers pass the trait to all daughters
- Trait can skip generations
- Affected mothers pass the trait to sons

**Describe how you would identify a carrier in an autosomal recessiv pedigree.**

*Hint: Consider the inheritance pattern and affected individuals.*

**Describe how you would identify a carrier in an autosomal recessiv pedigree.**

*Hint: Consider the patterns of inheritance and affected individuals.*

### Part 3: Application and Analysis

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**In a family pedigree, if a father has an X-linked dominant trait, which of the following are true? (Select all that apply)**

*Hint: Consider how X-linked dominant traits are inherited.*

- All daughters will have the trait
- All sons will have the trait
- The trait will not skip generations
- The mother must have the trait

**In a family pedigree, if a father has an X-linked dominant trait, which of the following are true? (Select all that apply)**

*Hint: Consider how X-linked dominant traits are passed from father to children.*

- All daughters will have the trait
- All sons will have the trait
- The trait will not skip generations

- The mother must have the trait

**Given a pedigree chart, how would you determine the probability of an offspring inheriting a specific trait?**

*Hint: Consider the inheritance patterns and genotypes of the parents.*

**Given a pedigree chart, how would you determine the probability of an offspring inheriting a specific trait?**

*Hint: Consider the genotypes of the parents and the inheritance pattern.*

**Which pattern of inheritance is most likely if a trait is passed from an affected father to all of his daughters but none of his sons?**

*Hint: Think about the inheritance patterns specific to X-linked traits.*

- Autosomal dominant
- Autosomal recessiv
- X-linked dominant
- X-linked recessiv

**Which pattern of inheritance is most likely if a trait is passed from an affected father to all of his daughters but none of his sons?**

*Hint: Think about how traits are transmitted through the X chromosome.*

- Autosomal dominant
- Autosomal recessiv

- X-linked dominant
- X-linked recessiv

## Part 4: Evaluation and Creation

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**Which of the following would be the best approach to confirm a suspected mode of inheritance in a pedigree?**

*Hint: Consider the methods used to analyze inheritance patterns.*

- Count the number of affected males and females
- Look for the trait skipping generations
- Perform a genetic test on family members
- Check if the trait appears in every generation

**Which of the following would be the best approach to confirm a suspected mode of inheritance in a pedigree?**

*Hint: Consider methods that provide genetic evidence.*

- Count the number of affected males and females
- Look for the trait skipping generations
- Perform a genetic test on family members
- Check if the trait appears in every generation

**When creating a pedigree chart for a newly discovered trait, which factors should be considered to determine its mode of inheritance? (Select all that apply)**

*Hint: Think about the characteristics of the trait and its distribution in the family.*

- Gender of affected individuals
- Number of generations affected
- Environmental factors
- Presence of carriers

**When creating a pedigree chart for a newly discovered trait, which factors should be considered to determine its mode of inheritance? (Select all that apply)**

*Hint: Think about the characteristics of the trait and its transmission.*

- Gender of affected individuals
- Number of generations affected
- Environmental factors

Presence of carriers

**Design a hypothetical pedigree chart for a family with an autosomal recessiv disorder. Describe the key features and explain your reasoning.**

*Hint: Consider the characteristics of autosomal recessively inherited traits.*

**Design a hypothetical pedigree chart for a family with an autosomal recessiv disorder. Describe the key features and explain your reasoning.**

*Hint: Consider how you would represent affected individuals and carriers.*