

Pedigree Practice Worksheet

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Part 1: Building a Foundation

Which symbol is typically used to represent a male in a pedigree chart?

Hint: Think about the basic symbols used in pedigree charts.

- A) Circle
- B) Square
- C) Triangle
- D) Diamond

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Which of the following statements are true about shaded symbols in a pedigree chart? (Select all that apply)

Hint: Think about what shaded symbols represent in terms of traits.

- A) They represent individuals who express the trait.

- B) They indicate carriers of a trait.
- C) They represent unaffected individuals.
- D) They show individuals with unknown genotype.

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Part 2: Comprehension and Application

In a pedigree chart, if a trait is seen in every generation, what is the most likely mode of inheritance?

Hint: Think about how traits are passed down through generations.

- A) Autosomal Recessiv
- B) Autosomal Dominant
- C) X-linked Recessiv
- D) Y-linked

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Which of the following are characteristics of a carrier in a recessiv trait pedigree? (Select all that apply)

Hint: Consider the genetic makeup of carriers.

- A) They express the trait.
- B) They have one dominant and one recessiv allele.
- C) They can pass the trait to offspring.
- D) They are always male.

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Explain what is meant by a heterozygous genotype and provide an example using allele notation.

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Hint: Consider the definition of heterozygous and how it relates to alleles.

If a father is affected by an X-linked recessive trait, what is the probability that his son will also be affected?

Hint: Consider how X-linked traits are inherited.

- A) 0%
- B) 25%
- C) 50%
- D) 100%

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In an autosomal dominant pedigree, if one parent is heterozygous for the trait and the other is unaffected, what are the possible genotypes of their children? (Select all that apply)

Hint: Consider the combinations of alleles that can result from this pairing.

- A) Homozygous dominant
- B) Heterozygous
- C) Homozygous recessiv
- D) Carrier

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- A) Homozygous dominant
- B) Heterozygous
- C) Homozygous recessiv
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Part 3: Analysis, Evaluation, and Creation

A pedigree shows a trait that affects only males and is passed from father to son. What is the most likely mode of inheritance?

Hint: Think about how traits are inherited through male lineage.

- A) Autosomal Dominant
- B) Autosomal Recessiv
- C) X-linked Recessiv
- D) Y-linked

A pedigree shows a trait that affects only males and is passed from father to son. What is the most likely mode of inheritance?

Hint: Think about the inheritance patterns that affect males.

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In a pedigree chart, if a trait skips a generation, which inheritance patterns could it possibly indicate? (Select all that apply)

Hint: Consider how traits can be passed down through carriers.

- A) Autosomal Dominant

- B) Autosomal Recessiv
- C) X-linked Dominant
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In a pedigree chart, if a trait skips a generation, which inheritance patterns could it possibly indicate? (Select all that apply)

Hint: Consider the inheritance patterns that allow for skipped generations.

- A) Autosomal Dominant
- B) Autosomal Recessiv
- C) X-linked Dominant
- D) X-linked Recessiv

In a pedigree chart, if a trait skips a generation, which inheritance patterns could it possibly indicate? (Select all that apply)

Hint: Consider the implications of traits skipping generations.

- A) Autosomal Dominant
- B) Autosomal Recessiv
- C) X-linked Dominant
- D) X-linked Recessiv

Analyze a given pedigree chart (provide a sample chart) and determine the mode of inheritance. Justify your answer with evidence from the chart.

Hint: Look for patterns in the inheritance of traits.

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Hint: Consider the relationships and patterns in the chart.

Analyze a given pedigree chart (provide a sample chart) and determine the mode of inheritance. Justify your answer with evidence from the chart.

Hint: Consider the patterns of inheritance you observe.

Given a pedigree where a mother is affected by an X-linked dominant trait, what is the probability that her daughter will also be affected?

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

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- B) 25%
- C) 50%
- D) 100%

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Design a pedigree chart for a family with a known autosomal recessiv trait. Which of the following must be true? (Select all that apply)

Hint: Consider the implications of autosomal recessiv inheritance.

- A) Both parents must be carriers or affected.
- B) The trait can appear in any gender.
- C) The trait will appear in every generation.
- D) Unaffected parents cannot have affected children.

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Reflect on the importance of understanding genetic pedigrees in real-world applications such as genetic counseling and disease prevention. Provide examples to support your reflection.

Hint: Consider how this knowledge can impact individuals and families.

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Hint: Consider the implications of genetic knowledge in healthcare.

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Hint: Consider the implications of genetic knowledge.