

Genetics Pedigree Worksheet Answer Key PDF

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Part 1: Building a Foundation

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

undefined. Circle

undefined. Square ✓

undefined. Triangle

undefined. Diamond

A square is used to represent a male in a pedigree chart.

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

undefined. Circle

undefined. Square ✓

undefined. Triangle

undefined. Diamond

A square is used to represent a male.

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

undefined. Trait skips generations

undefined. Affected individuals have at least one affected parent ✓

undefined. Both males and females are equally likely to be affected ✓

undefined. Only males are affected

Affected individuals typically have at least one affected parent, and the trait does not skip generations.

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

undefined. Trait skips generations

undefined. Affected individuals have at least one affected parent ✓

undefined. Both males and females are equally likely to be affected ✓

undefined. Only males are affected

Affected individuals typically have an affected parent, and the trait does not skip generations.

Explain the difference between genotype and phenotype.

Genotype refers to the genetic constitution of an individual, while phenotype refers to the observable characteristics.

Explain the difference between genotype and phenotype.

Genotype refers to the genetic makeup, while phenotype refers to the observable characteristics.

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

1. What does a circle represent?

A female.

2. What does a square represent?

A male.

3. What does a filled shape indicate?

An affected individual.

Common symbols include circles for females, squares for males, filled shapes for affected individuals, and lines for relationships.

Part 2: Understanding and Interpretation

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

undefined. Autosomal recessiv

undefined. Autosomal dominant ✓

undefined. X-linked recessiv

undefined. mitochondrial

Autosomal dominant inheritance is likely if a trait is expressed in every generation.

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

undefined. Autosomal recessiv

undefined. Autosomal dominant ✓

undefined. X-linked recessiv

undefined. Mitochondrial

This pattern is indicative of autosomal dominant inheritance.

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

undefined. More males are affected than females ✓

undefined. Affected fathers pass the trait to all daughters ✓

undefined. Trait can skip generations ✓

undefined. Affected mothers pass the trait to sons ✓

X-linked recessively inherited traits are more common in males, can skip generations, and affected mothers pass the trait to sons.

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

undefined. More males are affected than females ✓

undefined. Affected fathers pass the trait to all daughters

undefined. Trait can skip generations ✓

undefined. Affected mothers pass the trait to sons ✓

X-linked recessively inherited traits are more common in males and can skip generations.

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

A carrier can be identified if they have an affected child but are unaffected themselves.

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Carriers can be identified if they have an affected child but are unaffected themselves.

Part 3: Application and Analysis

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

undefined. All daughters will have the trait ✓

undefined. All sons will have the trait

undefined. The trait will not skip generations ✓

undefined. The mother must have the trait

All daughters will inherit the trait, and the trait will not skip generations.

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

undefined. All daughters will have the trait ✓

undefined. All sons will have the trait

undefined. The trait will not skip generations ✓

undefined. The mother must have the trait

All daughters will inherit the trait, but sons will not.

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

You would analyze the genotypes of the parents and the inheritance pattern of the trait.

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

You would analyze the genotypes of the parents and apply Punnett squares to calculate probabilities.

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?

undefined. Autosomal dominant

undefined. Autosomal recessiv

undefined. X-linked dominant ✓

undefined. X-linked recessiv

This pattern is indicative of X-linked dominant inheritance.

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?

undefined. Autosomal dominant

undefined. Autosomal recessiv

undefined. X-linked dominant ✓

undefined. X-linked recessiv

This pattern suggests an X-linked dominant inheritance.

Part 4: Evaluation and Creation

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

undefined. Count the number of affected males and females

undefined. Look for the trait skipping generations

undefined. Perform a genetic test on family members ✓

undefined. Check if the trait appears in every generation

Perform a genetic test on family members to confirm the mode of inheritance.

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

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undefined. Perform a genetic test on family members ✓

undefined. Check if the trait appears in every generation

Perform a genetic test on family members to confirm the mode of inheritance.

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)

undefined. Gender of affected individuals ✓

undefined. Number of generations affected ✓

undefined. Environmental factors ✓

undefined. Presence of carriers ✓

Factors include gender of affected individuals, number of generations affected, and 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)

undefined. Gender of affected individuals ✓

undefined. Number of generations affected ✓

undefined. Environmental factors ✓

undefined. Presence of carriers ✓

Factors include the gender of affected individuals, the number of generations affected, and the presence of carriers.

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

Key features include affected individuals having unaffected parents and the trait potentially skipping generations.

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

The chart should show affected individuals, carriers, and the inheritance pattern, illustrating how the disorder is passed down.