Incomplete And Codominance Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is the definition of incomplete dominance?

Hint: Think about how alleles interact in this genetic scenario.

- ◯ A) A situation where one allele completely masks the other
- ◯ B) A situation where both alleles are equally expressed
- ◯ **C) A situation where the heterozygote phenotype is intermediate between the two homozygotes ✓**
- ◯ D) A situation where alleles are not expressed at all

> Incomplete dominance occurs when the heterozygote phenotype is intermediate between the two homozygotes.

Which of the following are examples of codominace?

Hint: Consider traits where both alleles are fully expressed.

- ☐ **A) AB blood type in humans ✓**
- ☐ B) Pink flowers from red and white parents
- ☐ **C) Roan coat color in cattle ✓**
- ☐ D) Green peas from yellow and green parents

> Examples of codominace include AB blood type and roan coat color in cattle.

Explain the difference between incomplete dominance and codominace in your own words.

Hint: Think about how the phenotypes of the offspring appear.

Incomplete dominance results in a blended phenotype, while codominace results in both phenotypes being fully expressed.

List two examples of incomplete dominance and two examples of codominace.

Hint: Consider common traits in plants and animals.

1. Example of incomplete dominance 1

Pink flowers from red and white parents

2. Example of incomplete dominance 2

Wavy hair from straight and curly parents

3. Example of codominace 1

AB blood type

4. Example of codominace 2

Roan coat color in cattle

> Examples of incomplete dominance include pink flowers from red and white parents, and wavy hair from straight and curly parents. Examples of codominace include AB blood type and roan cattle.

Part 2: comprehension and Application

In a cross between a red-flowered plant (RR) and a white-flowered plant (WW), what is the expected phenotype of the offspring if the trait shows incomplete dominance?

Hint: Consider how the alleles blend in the offspring.

- ◯ A) Red
- ◯ B) White
- ◯ **C) Pink ✓**
- ◯ D) Red and white patches

> The expected phenotype of the offspring would be pink flowers.

Which statements are true about the phenotypic ratio in incomplete dominance?

Hint: Think about the ratios you learned in genetics.

- ☐ A) It is always 3:1
- ☐ **B) It is 1:2:1 in the F2 generation ✓**
- ☐ **C) The heterozygote phenotype is distinct from both homozygotes ✓**
- ☐ **D) It shows a blending of traits ✓**

> The true statements include that the heterozygote phenotype is distinct from both homozygotes and that it shows a blending of traits.

Apply your understanding of incomplete dominance to predict the phenotypic outcome of a cross between two pink-flowered plants.

Hint: Consider the genotypes of the parents.

The expected phenotypic outcome would be a mix of red, pink, and white flowers.

If a plant with pink flowers (RW) is crossed with a plant with white flowers (WW), what is the expected phenotypic ratio of the offspring?

Hint: Think about the possible combinations of alleles.

- ◯ A) 1 red: 1 white
- ◯ **B) 1 pink: 1 white ✓**
- ◯ C) 1 red: 1 pink
- ◯ D) All pink

The expected phenotypic ratio of the offspring would be 1 pink to 1 white.

Part 3: Analysis, Evaluation, and Creation

Which of the following best describes the relationship between alleles in codominace?

Hint: Consider how both alleles are expressed in the phenotype.

- ◯ A) One allele is dominant over the other
- ◯ B) Both alleles are partially expressed
- ◯ **C) Both alleles are fully expressed ✓**
- ◯ D) Neither allele is expressed

In codominace, both alleles are fully expressed in the phenotype.

Analyze the following statements and identify which are true for incomplete dominance:

Hint: Think about the characteristics of incomplete dominance.

- ☐ **A) The heterozygote phenotype is a blend of the two homozygotes ✓**
- ☐ B) Both alleles are equally expressed
- ☐ **C) The phenotypic ratio in the F2 generation is 1:2:1 ✓**
- ☐ D) The genotypic ratio is always 3:1

The true statements include that the heterozygote phenotype is a blend of the two homozygotes and that the phenotypic ratio in the F2 generation is 1:2:1.

Evaluate the following scenario: If a trait shows incomplete dominance, what would be the most likely phenotype of the offspring from a cross between two heterozygotes?

Hint: Consider the possible combinations of alleles.

The most likely phenotype would be a mix of the two homozygous phenotypes, resulting in a blending effect.

Create a real-world scenario where understanding incomplete dominance could be crucial, and explain its significance.

Hint: Think about agricultural or medical applications.

Understanding incomplete dominance is crucial in agriculture for breeding plants with desired traits, such as flower color.