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Genetics Vocabulary Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the basic unit of heredity in a living organism?

undefined. A) Chromosome

undefined. B) Gene ✓

undefined. C) Alleles

undefined. D) DNA

The basic unit of heredity is a gene.

Which of the following are components of a chromosome?

undefined. A) DNA ✓

undefined. B) Protein ✓

undefined. C) Lipids

undefined. D) RNA

Chromosomes are made up of DNA and proteins.

Explain the difference between a genotype and a phenotype.

A genotype is the genetic makeup of an organism, while a phenotype is the observable characteristics.

List two types of cell division and briefly describe their purpose.

1. Type of cell division 1

mitosis

2. Purpose of cell division 1

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growth and repair

3. Type of cell division 2

meiosis

4. Purpose of cell division 2

producing gametes

The two types of cell division are mitosis (for growth and repair) and meiosis (for producing gametes).

Part 2: Understanding and Interpretation

Which of the following best describes an allele?

undefined. A) A type of cell division

undefined. B) A form of a gene ✓

undefined. C) A protein structure

undefined. D) A genetic disorder

An allele is a form of a gene that can exist in different versions.

Which scenarios demonstrate dominant allele expression?

undefined. A) A brown-eyed child from two blue-eyed parents

undefined. B) A tall plant from a short and tall parent ✓

undefined. C) A white flower from two white-flowered parents

undefined. D) A red flower from a red and white-flowered parent ✓

Dominant alleles are expressed when at least one dominant allele is present.

Describe how linked genes can affect inheritance patterns.

Linked genes tend to be inherited together, affecting the expected ratios of traits.

Part 3: Application and Analysis

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If a child inherits one allele for brown eyes and one for blue eyes, which eye color is likely to be expressed?

undefined. A) Blue

undefined. B) Brown ✓

undefined. C) Green

undefined. D) Hazel

Brown is likely to be expressed because it is typically the dominant allele.

In a genetic cross between two heterozygous individuals (Aa), what are the possible genotypes of the offspring?

undefined. A) AA ✓

undefined. B) Aa ✓

undefined. C) aa ✓

undefined. D) AaBb

The possible genotypes are AA, Aa, and aa.

Apply your understanding of incomplete dominance to predict the phenotype of offspring from a cross between a red-flowered plant and a white-flowered plant.

The offspring would likely have pink flowers due to incomplete dominance.

Which process increases genetic variation during meiosis?

undefined. A) DNA replication

undefined. B) Mutation

undefined. C) Cross-over ✓

undefined. D) Cell division

Cross-over increases genetic variation by exchanging genetic material between homologous chromosomes.

Which of the following are examples of polygenic traits?

undefined. A) Eye color ✓

undefined. B) Blood type

undefined. C) Skin color ✓

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undefined. D) Height ✓

Examples of polygenic traits include eye color, skin color, and height.

Analyze how mutations can lead to genetic disorders. Provide examples.

Mutations can disrupt normal gene function, leading to disorders such as cystic fibrosis and sick cell anemia.

Part 4: Evaluation and Creation

Which of the following best evaluates the impact of genetic engineering on agriculture?

undefined. A) It has no impact

undefined. B) It only benefits large corporations

undefined. C) It can increase crop yields and resistance to pests ✓

undefined. D) It is detrimental to all ecosystems

Genetic engineering can increase crop yields and resistance to pests.

Which strategies could be used to predict the likelihood of inheriting a genetic disorder?

undefined. A) Pedigree analysis ✓

undefined. B) Genetic counseling ✓

undefined. C) Random guessing

undefined. D) DNA sequencing ✓

Strategies include pedigree analysis, genetic counseling, and DNA sequencing.

Propose a method for using genetic information to address a real-world problem, such as a hereditary disease or agricultural challenge. Describe the steps and potential outcomes.

A method could involve gene therapy for hereditary diseases, which includes identifying the mutation, designing a corrective gene, and delivering it to the patient.

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