

I'm not robot!

Handwritten notes and a table with multiple rows of text and symbols, possibly related to genetics or biology.

KEY Morrison

Bikini Bottom Genetics

Scientists at Bikini Bottoms have been investigating the genetic makeup of the organisms in this community. Use the information provided and your knowledge of genetics to answer each question.

1. For each genotype below, indicate whether it is a heterozygous (He) OR homozygous (Ho) dominant = HD, recessive = Hr

TT HD Bb He DD HD FF He rr Hr dd Hr
Dd He ff Hr Tt He bb Hr BB HD FF HD

Which of the genotypes in #1 would be considered purebred? HD + Hr
Which of the genotypes in #1 would be hybrids? He

2. Determine the phenotype for each genotype using the information provided about SpongeBob.
Yellow body color is dominant to blue. YY yellow Yy yellow yy blue
Square shape is dominant to round. SS Square Ss Square ss round

3. For each phenotype, give the genotypes that are possible for Patrick.
A tall head (T) is dominant to short (t). Tall = TT or Tt Short = tt
Pink body color (P) is dominant to yellow (p). Pink body = PP or Pp Yellow body = pp

4. SpongeBob SquarePants recently met SpongeSusie Roundpants at a dance. SpongeBob is heterozygous for his square shape, but SpongeSusie is round. Create a Punnett square to show the possibilities that would result if SpongeBob and SpongeSusie had children. HINT: Read question #2!

Punnett square for Ss x ss:
S s
s Ss ss
s Ss ss

A. List the possible genotypes and phenotypes for their children. Ss = Square s s = round
B. What are the chances of a child with a square shape? 2 out of 4 or 50%
C. What are the chances of a child with a round shape? 2 out of 4 or 50%

5. Patrick met Patti at the dance. Both of them are heterozygous for their pink body color, which is dominant over a yellow body color. Create a Punnett square to show the possibilities that would result if Patrick and Patti had children. HINT: Read question #3!

Punnett square for Pp x Pp:
P p
P PP Pp
p Pp pp

A. List the possible genotypes and phenotypes for their children. PP + Pp = Pink p p = yellow
B. What are the chances of a child with a pink body? 3 out of 4 or 75%
C. What are the chances of a child with a yellow body? 1 out of 4 or 25%

T. Triampe 2003. <http://www.sciencepost.net>

Mutations Worksheet Name _____ Prv _____

There are two main types of mutations: point mutation and frameshift mutations. In each of the following DNA sequences, you will use the mRNA and amino acid sequences to identify the mutation that occurred and the effects of each on, if any. Look and analyze carefully!

Original DNA Sequence: T A C A C C T T G G C G A C G A C T
Amino Acid Sequence: _____

Mutated DNA Sequence #1: T A C A T C T T G G C G A C G A C T
What's the mRNA sequence? (Circle the change) _____
What will be the amino acid sequence? _____
Will there likely be effects? _____
What kind of mutation is this? _____

Mutated DNA Sequence #2: T A C G A C C T T G G C G A C G A C T
What's the mRNA sequence? (Circle the change) _____
What will be the amino acid sequence? _____
Will there likely be effects? _____
What kind of mutation is this? _____

Mutated DNA Sequence #3: T A C A C C T T A G G C G A C G A C T
What's the mRNA sequence? (Circle the change) _____
What will be the amino acid sequence? _____
Will there likely be effects? _____
What kind of mutation is this? _____

Mutated DNA Sequence #4: T A C A C C T T G G C G A C T A C T
What's the mRNA sequence? (Circle the change) _____
What will be the amino acid sequence? _____
Will there likely be effects? _____
What kind of mutation is this? _____

Mutated DNA Sequence #5: T A C A C C T T G G G A C G A C T
What will be the corresponding mRNA sequence? _____
What will be the amino acid sequence? _____
Will there likely be effects? _____
What kind of mutation is this? _____

DNA Analysis Review Questions: Answer Key

- What is DNA and why is it important to forensic scientists?
a. Provides ability to link biological evidence (blood, semen, hair, tissue) to a single individual with certainty
- Who discovered the molecular structure of DNA?
a. James Watson & Francis Crick
- Draw and label a DNA nucleotide.
a. Deoxyribose sugar, Phosphate, nitrogen base
- According to the rules of base pairing, how do the nitrogen bases pair up?
a. Adenine-Thymine, Cytosine-Guanine
- In humans, 99.9% of the nucleotide bases are the same. 1% is unique making each human one of a kind.
- The sequence of nitrogen bases is a code for specific amino acids - to combine to make specific proteins.
- Most common types of evidence forensic investigators use for testing DNA:
a. Bodily fluids (blood, semen)
- The first forensic use of DNA technology in criminal cases:
a. Alec Jeffreys
- Explain how DNA profiling (fingerprinting) can be used to identify people by their unique genetic code.
a. identify suspects whose DNA may match evidence left at crime scenes
b. clear persons wrongly accused of crimes
c. identify fathers in paternity cases
d. identify unknown remains in mass disasters
e. match organ donors with recipients in transplant programs
- What is a restriction enzyme?
a. an enzyme that recognizes a specific sequence of bases and cut the DNA molecule at a specific point
- What does the term RFLP mean?
a. Restriction Fragment Length Polymorphisms
- During gel electrophoresis, what happens to the DNA?
a. DNA fragments are separated by size. Smaller fragments move farther/faster than larger fragments
- List the four main procedures involved in DNA fingerprinting:
a. Isolation, cutting, Sorting, Analyzing
- What is the purpose of a radioactive probe?
a. The probe will adhere (connect) to specific fragments and allow them to be visualized when the gel is developed after electrophoresis

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In addition to the overview materials on computer programming, there are also more advanced topics on encoding'C and C++. The fun part is that it is easy to browse any material you find useful. UdemyProva Udemy for "coding" and you will discover a long list of video-oriented online courses that should appeal to many beginners coders. Courses are not free, but even if you have no prior experience with programming, you will probably find a coding class at Udemy that fits your specific skill level. More information about QUESTION Phone scammers are becoming smarter with their tactics. And if you're not careful, they could make big bucks from you, the unsuspecting caller. In addition to hanging on if you hear this phrase of four words, there is something else you can do to avoid becoming a victim and keep up with the security and privacy of your smartphone. Some area codes may experience potential targets that the call is not secure, according to Joseph Steinberg, CEO of SecureMySocial. Although callers scam once used a number 900, they changed their methods, as the general public became aware of their tactics. Now, many phone scam numbers have different area codes, including 809, which originates in the Caribbean. Another area code to look out may seem to be coming from the United States, but it is not. "The criminals have been known to use calling IDs with area code 473, which seems to be domestic, but it is actually the area code for the island of Grenada," Steinberg says. Watch out for these phone scams that could steal your money too. By the way, those calls add quickly. He may be accused of receiving a call from one of those foreign countries, according to AARP. In addition, scammers can flip out of your money through fake holiday scams and false stories about danger issues or money. The iPhone and iPhone scamsUber scams are also increasing, making Apple enthusiasts and Uber users alike more robust. Make sure you know how to avoid Uber scams and how to stop spam texts on your phone. 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If you are behind a web filter, make sure that the *.kastatic.org and *.kasandbox.org domains are unlocked. Thank you for your participation! 1. Koonin E.V., Novozhilov A.S. Origin and evolution of genetic code: the universal enigma. Life iuBmb. 2009; 61: 99ac "111. doi: 10.1002/iub.146. [Free Article PMC] [PubMed] [CrossRef] [Google Scholar] 2. Eigen M. Self-organization of matter and evolution of biological macromolecules. Naturwissenschaften. 1971; 58: 465 *523. doi: 10.1007/bf00623322. [PubMed] [CrossRef] [Google Scholar] 3. Sonneborn T.M. Degeneration of genetic code: extension, nature and genetic implications. In: Bryson V., Vogel no no .R.C.eseoW 4 JralohCs elgoogI .5691 :ASU .YN .kro' weN ;sserP cimedaca .enoizulove niaa enietorp e ineG .irotide evolution of the genetic code. Proc. Natl. Acad. Ski. USA. 1965; 54: 1546a e "1552. DOI: 10.1073/PNAS.54.6.1546. [PMC Free Articles] [PubMed] [CrossRef] [Google Scholar] 5. Epstein c.j.

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