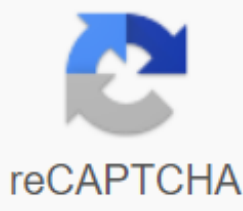




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Mendelian Genetics Lab 8 Answers. Offered Price: \$ 34.00 Posted By: manchester_united Posted on: 12/03/2014 01:03 PM Due on: 01/21/2015 Question # 00034510 Subject Biology Topic General Biology Tutorials: 1 Question Purchase it Experiment 1: Punnett square crossesMaterialsRed beadsBlue beadsGreen beadsYellow beads2 100mL BeakersProcedure1. Set up and complete Punnett squares for each of the following crosses:(remember Y = yellow, and y = blue)Y Y and Y yY Y and y ya) What are the resulting phenotypes?2010 eScience Labs, Inc.All Rights Reservedb) Are there any blue kernels? How can you tell?2. Set up and complete a Punnett squares for a cross of two of the F1 from 1above:a) What are the genotypes of the F2 generation?b) What are their phenotypes?2010 eScience Labs, Inc.All Rights Reservedc) Are there more or less blue kernels than in the F1 generation?3. Identify the four possible gametes produced by the following individuals:a) YY Ss:b) Yy Ss:c) Create a Punnett square using these gametes as P and determine thegenotypes of the F1:d) What are the phenotypes? What is the ratio of those phenotypes?4. You have been provided with 4 bags of different colored beads. Pour 50 of theblue beads and yellow beads into beaker #1 and mix them around. Pour 50 ofthe red beads and green beads in beaker #2 and mix them.Attention!Donotpourthebeakerstogether.2010 eScience Labs, Inc.All Rights Reserved#1 contains beads that are either yellow or blue.#2 contains beads that are either green or red.Both contain approximately the same number of each colored bead.These colors correspond to the following traits (remember that Y/y isfor kernel color and S/s is for smooth/wrinkled):Yellow (Y) vs. Blue (y)Green (S) vs. Red (s).A. Monohybrid Cross: Randomly (without looking) take 2 beads out of #1.This is the genotype of individual #1, record this information. Do notput those beads back into the beaker.Repeat this for individual #2. These two genotypes are your parentsfor the next generation. Set up a Punnett square and determine thegenotypes and phenotypes for this cross.Repeat this process 4 times (5 total). Put the beads back in theirrespective beakers when finished.a) How much genotypic variation do you find in the randomly pickedparents of your crosses?b) How much in the offspring? 2010 eScience Labs, Inc.All Rights Reserved2010 eScience Labs, Inc.All Rights Reservedc) How much phenotypic variation?d) Is the ratio of observed phenotypes the same as the ratio of predictedphenotypes? Why or why not?e) Pool all of the offspring from your 5 replicates. How much phenotypicvariation do you find?f)What is the difference between genes and alleles?g) How might protein synthesis execute differently if there a mutationoccurs?2010 eScience Labs, Inc.All Rights Reservedh) Organisms heterozygous for a recessive trait are often called carriersof that trait. What does that mean?i)In peas, green pods (G) are dominant over yellow pods. If a homozygous dominant plant is crossed with a homozygous recessiveplant, what will be the phenotype of the F1 generation? If two plantsfrom the F1 generation are crossed, what will the phenotype of theiroffspring be? 2010 eScience Labs, Inc.All Rights ReservedB. Dihybrid Cross: Randomly (without looking) take 2 beads out of beaker #1 AND 2beads out of beaker #2.These four beads represent the genotype of individual #1, record thisinformation.Repeat this process to obtain the genotype of individual #2.a) What are their phenotypes?b) What is the genotype of the gametes they can produce?Set up a Punnett square and determine the genotypes andphenotypes for this cross.c) What is your predicted ratio of genotypes? Hint: think back to our example dihybrid crossRepeat this process 4 times (for a total of 5 trials).2010 eScience Labs, Inc.All Rights Reservedd) How similar are the observed phenotypes in each replicate?e) How similar are they if you pool your data from each of the 5replicates?f)Is it closer or further from your prediction?2010 eScience Labs, Inc.All Rights Reservedg) Did the results from the monohybrid or dihybrid cross most closely match your predicted ratio of phenotypes?h) Based on these results; what would you expect if you were lookingat a cross of 5, 10, 20 independently sorted genes?i)Why is it so expensive to produce a hybrid plant seed?2010 eScience Labs, Inc.All Rights Reservedj)In certain bacteria, an oval shape (S) is dominant over round andthick cell walls (T) are dominant over thin. Show a cross between a heterozygous oval, thick cell walled bacteria with a round, thin cell walled bacteria. What are the phenotype of the F1 and F2offspring? 5. The law of independent assortment allows for genetic recombination. The following equation can be used to determine the total number of possiblegenotype combinations for any particular number of genes:2g= Number of possible genotype combinations (where g is the number ofgenes)1 gene:21= 2 genotypes2 genes: 22= 4 genotypes3 genes: 23 = 8 genotypesConsider the following genotype:Yy Ss TtWe have now added the gene for height: Tall (T) or Short (t).a) How many different gamete combinations can be produced?2010 eScience Labs, Inc.All Rights Reservedb) Many traits (phenotypes), like eye color, are controlled by multiplegenes. If eye color were controlled by the number of genes indicated below, how many possible genotype combinations would there be?5:10:20: Answers Lab 9 Mendelian Genetics.docx. Download Answers Lab 9 Mendelian Genetics.docx (2.49 MB) ... © Copyright, Cold Spring Harbor Laboratory.All rights reserved. A seed is a small embryonic plant enclosed in a covering called the seed coat, usually with some stored food. The formation of the seed completes the process of reproduction in seed plants (started with the development of flowers and pollination), with the embryo developed from the zygote and the seed coat from the integuments of the ovule. BIO Lab 14 Mendelian Genetics Experiment 1 Punnett SquareCrosses: Given what you now know about Mendelian genetics, discuss: Overview of Mendelian and non-Mendelian genetics: Genetics of Corn - Experiment 1 A Monohybrid Cross: HUMAN BIOL 108 How do you explain how a Punnett square is read: Lab14 Mendelian Genetics Experiment 1 Punnett SquareCrosses Start studying Mendelian Genetics Lab. Learn vocabulary, terms, and more with flashcards, games, and other study tools.

