

- iii. Test 3: AABB x aabb (head and tail of the nickel are A; head and tail of the penny are B; head and tail of the dime are a; head and tail of the quarter are b)
- iv. Test 4: AaBb x AaBb (head is dominant and tail is recessive on all coins)
- v. Test 5: AaBb x aabb (head is dominant and tail is recessive on the nickel and penny; head and tail on the quarter and dime are recessive).

B. Flip each coin 20 times for each test and record results. Use a checkmark or an X to indicate the offspring's genotypes.

C. Determine the F_1 frequencies and ratios based on the results.

NOTE: When recording the ratios, round to the nearest whole number.

7. Create Punnett squares for the following dihybrid cross:

A. RRWw x RrWw

- i. Assume while doing so that it is an incomplete dominance situation
- ii. R = Red petals, r = white petals, Rr = pink petals.
- iii. W = White fur, w = black fur, Ww = grey fur.


8. Create a Punnett square for the following genotypic cross XX vs. XY.

PART II: Calculating the Frequency of Corn Kernel Characteristics

In this part of the lab, frequencies of two corn kernel characteristics will be determined: kernel color and kernel texture. In observing the ears of corn, note that the kernels are either purple or yellow and that they are either smooth or wrinkled. With respect to color, purple is the dominant color, and yellow is the recessive color. With respect to texture, smooth is the dominant texture, and wrinkled is the recessive texture. Use the following designations for each trait: purple (P); yellow (p); smooth (S); wrinkled (s). Keep this information available as it will be needed later on in the lab.


1. Observe the image of a corn ear below. Notice that the ear of corn contains purple and yellow kernels. Study the image and then count three rows of kernels, tallying the number of purple and the number of yellow kernels. Record this information on a piece of paper to refer to later in this laboratory. Review the results and indicate the frequency (ratio) of purple to yellow kernels.



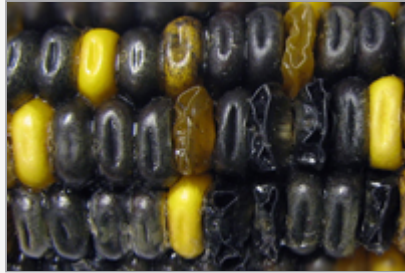
 Click on image to enlarge.


2. Observe the image of a corn ear below. Notice that the ear of corn contains purple and yellow kernels. Study the image and then count three rows of kernels, tallying the number of purple and the number of yellow kernels. Record this information on a piece of paper. Review the results and indicate the frequency (ratio) of purple to yellow kernels.



 Click on image to enlarge.

3. Observe the image of a corn ear below. Notice that the ear of corn contains purple and yellow kernels. Additionally, notice that some of the corn kernels are smooth, and some of the corn kernels are wrinkled. Study the image and then count three rows of kernels, tallying the number of kernels. For this exercise, there will be four different kernels to count: purple and smooth, purple and wrinkled, yellow and smooth, or yellow and wrinkled. Record this information on a piece of paper. Review the results and indicate the frequency (ratio) of corn kernels.



 Click on image to enlarge.

Assessing Your Learning



Warning: You are expected to submit your own, individual work. Using work completed by anyone other than yourself is plagiarism. This includes resources found on internet sites. Posting assessments on an unauthorized web site, soliciting assessment answers or the acquisition of assessments, assessment answers, and other academic material is cheating. Cheating and/or plagiarism will result in a failing grade for the course.

Download the Lab Worksheet. Compose answers to the questions below using the Lab Worksheet and save the file as a backup copy in the event that a technical problem is encountered while attempting to submit the assignment. Make sure to run a spell check.

You will be submitting your answers to the lab assignment in two parts. The first part of the lab assignment consists of the laboratory exercise questions. The second part of the lab assignment is the application question. The first textbox on the submission page corresponds to the first part of the lab.