

Mouse Genetics Websheet

Name: _____

The explore science website has a nifty shockwave module that allows you to selectively breed mice with one or two separate traits. Go to the website (http://www.explorescience.com/activities/Activity_page.cfm?ActivityID=39) and feel free to read the brief intro and the section about statistics. Here there are a host of quick questions that explain genetics much like the flip of a coin. What genes an organism receives is very much random chance, much like a coin toss or even the lottery.

For the simple MouseHome you should determine which color trait (fur color) is dominant and which is recessive. In order to correctly answer the question, you need to cite what evidence you have.

After finding out which trait is dominant for fur color, go to the Advanced MouseHome section and determine which trait is dominant for eye color. Breed a black fur, black-eyed mouse with a white fur red-eyed mouse. Save two of these children from this cross in 'the cage'.

What genotype do these hybrids have? Write out the expected dihybrid-cross for the breeding of these two mice below. Be sure to write both the genotype and phenotype for this F2 generation.

Now what do you find for your genotypic and phenotypic ratios?

Seeing that you have predicted what the offspring from this cross is, now go ahead and cross these two in the Advanced MouseHome. Turn on the counter and continue to breed these mice for 10-20 generations. What do you find for the phenotypic ratios? Does this coincide with your predictions above? Explain why or why not....

Now that you're a brilliant geneticist, explain to someone how you would go in the lab and produce the following strands of mice given the parental stock you are supplied with (black fur, black eyed OR white fur, red eyed) Be sure to use the vocabulary you have been learning to help explain, and sketch out what parents you need to use along the way to get these desired results.

a. Black fur, Black eyed mice

b. White fur, Red eyed mice

c. White fur, Black eyed mice

d. Black fur, red eyed mice

e. A five assed mouse with red eyes.

