Dihybrid Cross Worksheet 3

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Name

Date

Dihybrid cross problems

1. A species of maize has a biallelic gene encoding color (yellow, Y; purple y), as well as a biallelic gene encoding kernel texture (smooth, S; wrinkly, s). Assuming complete dominance, if a heterozygous yellow, homozygous wrinkly plant is mated with a homozygous purple, heterozygous smooth plant:

a. What is the genotype(s) of the parents? _____ x _____

b. What are the four possible allele combinations for each parental gamete?

Parent 1: _____

Parent 2: _____

c. Fill out the following dihybrid cross to determine potential F1 crosses.

2. Using the filled out dihybrid cross, determine what proportion of the offspring are expected to be:

a. Yellow and wrinkly: _____

b. Yellow and smooth: _____

c. Purple and smooth: _____

d. Purple: _____

e. Wrinkly: _____

3. List out the possible genotypes of this specific cross:

a. Yellow and smooth: _____

b. Purple and smooth: _____

c. Yellow and wrinkly: _____

4. Tomato plant genes responsible for plant texture (coarse, C; fine, c) and flower color (purple, P; gray, p) have been discovered. You decide to self-pollinate a heterozygous coarse plant with heterozygous purple flowers. Assuming complete dominance, determine the following:

a. What is the genotype of the parent(s)? _____ x _____

b. Fill out the following dihybrid cross to illuminate potential F1 genotypes and phenotypes:

5. Using the completed dihybrid cross, determine the probability of the following offspring:

a. Coarse and purple: _____

b. Fine and purple: _____

c. Coarse and gray: _____

6. List out the possible genotypes of this specific cross:

a. Fine and purple: _____

b. Purple and coarse: _____