Chi-Square Test Practice

Name: _____ **Period:** _____ **Date:** _____

Open **peebedu.com** and navigate to **Chi-Square Test Practice**. Read the introduction, which explains what the chi-square test is for and sets out the four steps. Click **Start Practicing** to receive a scenario. **Show Solution** reveals the full worked answer whenever you need it.

Free Response Questions

Question 1 — Conceptual Analysis

Simulation Task: *Click Start Practicing and read the Scenario together with the Observed Data table. Note the ratio the scenario says the cross should produce and the total number of offspring counted. Then click Show Solution and follow how the expected number for each phenotype class was obtained from that ratio.*

(A) (1 pt) **Describe** how the expected number of offspring in each phenotype class is obtained from a predicted ratio and a total number of offspring.

(B) (1 pt) **Explain** why a cross between two heterozygous parents is predicted to give a 3:1 phenotypic ratio.

(C) (1 pt) **Predict** the phenotypic ratio expected among the offspring of a cross between a heterozygous individual and a homozygous recessive individual.

(D) (1 pt) **Justify** your prediction.

Question 2 — Analyze Model / Visual Representation

> **Simulation Task:** *Use New Dataset until you are given a dihybrid scenario. Read the chi-square value the activity reports, find the critical value for the stated degrees of freedom in the Chi-Square Critical Values table, and read the conclusion given in the Step-by-Step Solution.*

(A) (1 pt) **Describe** the two values the activity compares in order to reach a conclusion about the null hypothesis.

(B) (1 pt) **Explain** why a chi-square value larger than the critical value leads to rejection of the null hypothesis.

(C) (1 pt) **Represent** the outcome of a cross whose data support the null hypothesis by drawing a labeled bar graph that shows the observed count and the expected count side by side for each phenotype class.

Draw your diagram here.

(D) (1 pt) **Explain** how the separation of homologous chromosomes during meiosis produces the gamete proportions that the expected values rest on.