California Science Center

# CALIFORNIA STATE SCIENCE FAIR

## 2001 PROJECT SUMMARY

**Your Name** (List all student names if multiple authors.)

**Jan M. Humphrey**

**Project Title** (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

**Drosophila melanogaster**

**Science Fair Use Only**

**J1812**

**Division**

X **Junior (6-8)** _ **Senior (9-12)**

**Preferred Category** (See page 5 for descriptions.)

**18 - Zoology**


**Abstract** (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

With a desire to become a Veterinarian,I wanted to pursue a science project that would benefit me in future studies and one that I could build on, for a three or four year study. Laws and regulations limit experimental study with vertebrate animals, which I would most prefer, so I arrived at the perfect solution, the study of Genetics using Drosophila melanogaster. After investigating different possible crosses, I chose to study eye color with the following problem, will a cross between pure dominant red-eyed flies and pure recessive white-eyed flies exhibit a phenotype ratio of 3:1 in the F(2) generation. I hypothesized that a cross between the red-eyed and white-eyed fruit fly would demonstrate an F(2) phenotype ratio of 3:1. For my P(1),I used wild type females and white-eyed males. The resulting F(1) generation flies, all red-eyed, were counted, sorted by sex, and crossed to produce the F(2) generation. The F(2) flies were sorted by eye color and counted to get resulting statistics. Of the 1,194 F(2) flies, 893 were red-eyed while 301 had white eyes, giving me a phenotype ratio of three red-eyed flies to one white-eyed fly, proving my hypothesis correct. Surprisingly, all of the white-eyed flies were males, which has nothing to do with this year's project, but curiosity may lead me into a second year study of a possible sex linked characteristic.


**Summary Statement** (In one sentence, state what your project is about.)

My project is about dominance and recessiveness in Drosophila melanogaster as demonstrated through eye color, studying the phenotype ratio expressed in the F(2) generation from pure dominant and pure recessive P(1) flies.

**Help Received in Doing Project** (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.