



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Arlene L. Mesler	Project Number J0125
Project Title Physics of Flying Fruits	
Abstract Objectives/Goals Many plants disperse their fruits or seeds (diaspores) by wind; some of the best known are maples and conifers. I studied some of the variables that affect the rate of descent of a wind-dispersed diaspore (fruit or seed). I predicted that the time of descent of a diaspore would (a) increase as the wing surface area increases, (b) decrease as the weight of the seed increases, (c) stay the same across all of the sizes when the ratio of seed weight to wing area is the same, and (d) perform better if the seed weight is attached to the middle of the wing, rather than the bottom. Methods/Materials To test my hypotheses I built a series of artificial diaspores using stiff paper and parafilm and altered the size of the wing, weight of the seed and placement of the seed weight. I conducted four experiments where I changed those variables. Results As expected, diaspores with larger wing surfaces tended to take longer to fall to the ground than ones with smaller wings, diaspores with heavier seeds fell more rapidly than ones with lighter seeds, and diaspores with the seeds in the middle fell more slowly than the ones with seeds at the bottom. In contrast, the experiment that examined the effect of the ratio of surface area and weight did not turn out as expected. Diaspores of different sizes but the with same surface to weight did not fall at the same rate. Conclusions/Discussion The constant wing loading experiment's results may have turned out the way they did for many reasons. I think that the most likely is that having a larger wing gives a diaspore such an advantage that even if the ratio of weight to area was the same for a large and small wing the large wing would perform better. Over time, evolution has resulted in many shapes, sizes, and weights of wind dispersed diaspores. This is how my project applies to the world.	
Summary Statement I studied some of the variables that affect the rate of descent of a wind dispersed diaspore.	
Help Received Mother and father helped conduct experiments by doing things such as timing and recording.	