



CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

Name(s) Winter R. Patterson	Project Number J1916
Project Title What Snack Makes Goldfish Smile Back?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this project is to determine which type of goldfish food will make goldfish gain the most mass. I predicted that out of three types of foods (bloodworms, goldfish flakes, and veggie rounds) the bloodworms would provide the most mass gain.</p> <p>Methods/Materials Six kitchen bowls were used that had three goldfish in each bowl. Then each bowl was assigned a type of food it would be fed over the next five weeks. Two of the bowls were assigned goldfish flakes, two were assigned spirulina enhanced veggie rounds, and two were assigned freeze dried bloodworms. Every morning and night at 7:15 I gave .1 grams of food to each bowl. After the initial weighing, I weighed the fish once a week for the next five weeks using a balance scale. First I would scoop a small cup of water from one of the bowls then weigh it on the scale. Then I took the three goldfish from that bowl and put them in the cup to be weighed again. By finding the difference of these two weights, I acquired the mass of the three goldfish.</p> <p>Results Every group gained mass after five consecutive weeks although the two groups that were fed the bloodworms gained the most mass. One group gained 2.06 grams of mass while the other gained 1.8 grams. The next largest group was a group fed goldfish flakes that gained 1.76 grams of mass. Following this was a veggie round group that gained 1.75 grams. The other group fed goldfish flakes gained 1.63 grams, while the other veggie round group gained 1.38 grams. If you add up the mass gains for both the bloodworm groups you get a total of 3.86 grams of mass. Therefore the goldfish fed bloodworms gained the largest total mass. The goldfish flake groups came in second with a total of 3.39 grams gained, and the veggie rounds had the least total mass gain at only 3.13 grams.</p> <p>Conclusions/Discussion The results supported my hypothesis. I had based my hypothesis on my knowledge of how protein is the main factor for growth in fish. Previous research stated that proteins provide essential amino acids and therefore boosting this amount would make a goldfish grow larger. The bloodworms had the highest protein level (55%), followed by the goldfish flakes (42%). The veggie rounds had the least amount (34%). Because of the differences in protein levels, this is probably why my results came out the way they did. The information I acquired may be helpful to fish farmers and pet owners who want to grow larger fish.</p>	
Summary Statement Of the three types of fish foods: goldfish flakes, spirulina enhanced veggie rounds, and bloodworms; bloodworms provide the most mass gain in goldfish, followed by goldfish flakes then veggie rounds.	
Help Received My mom took me to the pet store to purchase all the needed materials and helped me to accurately measure the right amount of food for each feeding. My science teacher taught me how to use a balance scale. Jeremy Smith from the pet store told me which types of foods would be safe for goldfish.	