



**Project ID: 501**  
**Junior Division**  
**Animal Sciences**

**Grant Alexander**  
**La Jolla Country Day School**  
**Gr. 6**



*Effect of High Temperature on Honey-pot Ants*

The purpose of this test was to find out how temperature affects Honey-pot ants behavior. The main goal was to see what temperature honey-pot ants can function the best in. The ants were left at 80°F, 90°F, and 100°F for 3 days. Measurements were made in the morning and 12 hours after in the afternoon. The hypothesis was that the ants would be more active in higher temperatures.

After collecting data twice a day for 3 days, the results suggest that Honey-pot Ants are more active in higher temperatures. The average mL of Honey syrup consumed increased slightly as the temperature was increased for both nests. The average number of seeds eaten also increased for each nest, as did the larvae. The results for the number of eggs laid showed a slight increase in nest 2, but not in nest 1.



**Project ID: 502**  
**Junior Division**  
**Animal Sciences**

**Gabriella Harris**  
**Nazareth School**  
**Gr. 7**



*Does the Food You Feed Harvester Ants Affect Their Productivity?*

For this project I tested if ants are more productive with certain foods. I hypothesised that the ants would be most productive when they were fed honey. I fed the harvester ants multiple foods including crackers, honey, peanut butter, and my control, sunflower seeds. Every day I used a lamp in place of the sun. The lamp was on for 12 hours a day. I also used a box so no excess light or other variables affected the ants. Observation of the ants' productivity was for one week. Productivity is defined as the amount and average length of tunnels made by the harvester ants. I calculated the tunnels by counting each innersection and measuring the length with a ruler. Findings included that ants made the longest and most tunnels when they were fed honey. The ants fed honey made 18 tunnels with the total length 474 mm. Ants fed sunflower seeds made 7 tunnels with the total length of 294 mm. The ants fed peanut butter made 6 tunnels with the total length of 132 mm. Lastly the harvester ants fed crackers made only 2 tunnels with a total length of 20mm. To conclude, the harvester ants fed honey were most productive, which supported my hypothesis.



**Project ID: 503**

**Junior Division**

**Animal Sciences**

**Abdullah Mumin**

**Bright Horizon Academy**

**Gr. 8**



### *Effect of an Electromagnetic Field On Planaria*

The purpose of this project is to investigate the effect of exposure to an electromagnetic field on the behavior and physiological processes of dissected planaria, with the aim of understanding the impact of such exposure on these organisms. Exposure to an electromagnetic field will have an effect on the behavior but will not have any effect on physiological processes of dissected planarian regeneration.

The Planaria were obtained and placed in a Petri dish with spring water-based solution. An electromagnetic field was generated using one or two magnets and the behavior and growth rate of the Planaria were recorded while exposed to the field and compared to when it was not exposed. The data was collected and analyzed to determine the effect of exposure to the electromagnetic field.

In conclusion, the results of the experiment showed that the planaria exposed to high levels of electromagnetic fields had the highest regeneration rate and growth rate compared to those living in a no-exposure environment. The planaria exposed to high EMF level showed complete head regeneration in just 3 days, while the planaria that had no exposure took 4 days to regenerate their heads. Additionally, the growth rate of the planaria exposed to high EMF was 60% higher compared to the no-exposure group. These findings suggest that exposure to high levels of EMF can significantly affect the regeneration and growth rate of planaria.



**Project ID: 504**  
**Junior Division**  
**Animal Sciences**

**Sydney O'Donnell**  
**The Rhoades School**  
**Gr. 6**



*Can Domestic Chickens Be Trained to Respond to Color Commands?*

**AWARDS:**

***San Diego County Veterinary Medical Association - Junior Division Winner***  
***CSEF Qualified***

I recently read an article that said chickens have amazing color vision. I decided to design a test to discover if my chickens could be trained to respond to a color card signal. My hypothesis was that with practice the chickens would respond appropriately to the directional cue provided by the color card.

I obtained the chickens' attention by using an auditory signal, "feeding time", and displayed a color card. I threw sunflower seeds in the direction associated with that color. I repeated the procedures daily and recorded the results. By Day 6 of the training, the hens highest in the pecking order regularly responded to the color card signal and moved in the appropriate direction. The other hens followed. The five hens highest in the pecking order responded appropriately on average 85% of the time. When I tried to introduce a new color card, signaling a different direction, this seemed to confuse the hens.

My conclusion was that the hens highest in the pecking order comprehended the signal and responded appropriately to the color card. When I called out "feeding time!" However, the pecking order was much more important than I had anticipated. The other hens would look in the correct direction, but wait to move until the lead chickens had proceeded. And although it seemed I had their attention during the experiment, five hens who were lowest in the pecking order never moved towards the seeds during the experiment



**Project ID: 505**  
**Junior Division**  
**Animal Sciences**

**Khadija Paband**  
**Bright Horizon Academy**  
**Gr. 8**



### *Effect of Precise Medication on Planaria Generation*

This experiment aims to investigate how caffeine and dopamine-boosting medications affect planaria's ability for regeneration. I have hypothesized that planaria will show the highest growth rates with caffeine, formulating a potential remedy to accelerate the process of regeneration.

The experiment involved preparing Petri dishes labeled "Control", "Low" and "High" Caffeine Concentration, and "Low" and "High" Dopamine Enhancer Concentration. Dishes received 30 ml of spring water, Caffeine (from green tea), or Dopamine Enhancer gel in the dishes. Live planaria were placed into each dish. After 24 hours, planaria were amputated below the head. Planaria growth and movement were compared among the groups to assess the effects of caffeine and dopamine enhancers on regeneration.

The results indicate the number of days required for planaria in each environment to fully regrow their heads. In the control group, planaria took 10 days to regrow. On average, planaria exposed to caffeine had a 25% difference in regrowth time. Planaria exposed to dopamine enhancers grew at an average rate of 35%. Notably, planaria in the high dopamine enhancer group exhibited the fastest regeneration at 40%. These findings suggest that exposure to caffeine and dopamine enhancers accelerates the regrowth process in planaria, with higher concentrations leading to faster regeneration times.

In conclusion, the findings of this experiment showed that dopamine enhancers, along with caffeine, have a noticeable impact on the regrowth ability of planaria. Planaria exposed to dopamine enhancers exhibited a faster regrowth of their heads compared to those in the control and caffeine-treated groups.



**Project ID: 506**  
**Junior Division**  
**Animal Sciences**

**Daniel Snyder**  
**San Diego Hebrew Day School**  
**Gr. 8**



*Controlling the Caterpillar Population Using the Targeted Application of Arthropods*

At the beginning of this project, I hypothesized that caterpillar predators (Assassin Bugs, Green Lacewings, and ants) could be placed with the caterpillars and effectively eliminate them. An enclosure was placed over a plant with caterpillars and their predators for 18 days, and every day the leaves eaten and caterpillars eaten were logged. After 18 days of testing, the Assassin Bugs ate eight of the caterpillars and bothered them, an ant killed one but didn't eat it, and the Green Lacewings only bothered the caterpillars. The final results of the leaves eaten by the caterpillars were 22% in the Green Lacewing enclosure, 28% in the Assassin bug enclosure, 60% in the ant enclosure, and 50% in the control. It is taken from this that smaller predators typically don't touch the larger prey because it is too much to fight. The Assassin Bugs and Green Lacewings did well in stopping the caterpillars because they are fierce and don't give up, even if they can't take the caterpillars down. The ants had found other small prey hidden in the dirt and made a colony underground, not even attempting to attack the larger caterpillars. From this, it is shown that bigger predators lead to less prey.



**Project ID: 507**  
**Junior Division**  
**Animal Sciences**

**Ava Hilinski**  
**Eastlake Middle School**  
**Gr. 8**



*Parasites in Paradise*

**AWARDS:**

***US Air Force Award Winner***

This project investigates the frequency of intestinal parasite infestations in two dog populations: Those who visit community dog parks and those who do not. The question is whether it is better to avoid dog parks to keep your dog's safe from parasites. The hypothesis is that dogs who attend dog parks have a higher rate of internal parasite infestation

The procedures involved collecting fecal samples from dog parks around San Diego County, processing the samples, then submitting them to a certified veterinary laboratory to test for 15 types of internal parasite infestation.

Additionally, data was collected using lab reports from a local pet hospital. The results of internal parasite testing for pets who never visited dog parks were then collected and analyzed. The laboratory testing included common intestinal parasites such as Giardia, Coccidia, Roundworm, Tapeworm and Hookworm.

The results of the project showed that visited dog parks had a 22% rate of internal parasite infection, while the non-dog park pets suffered from a 21% infestation rate. The conclusion of this investigation is that going to dog parks leads to a slight increased risk of intestinal parasites for dogs. This project is important because it provides valuable information for pet owners regarding the frequency and risks of internal parasites in dogs. Additionally, because certain parasites are zoonotic and can infect humans, more awareness leads to better community health.