



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

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

Christina B. Hackett

Science Fair Use Only

J0709

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

Thirsty: The presence of coliform and E. coli bacteria in the Tule River Watershed.

Division

J Junior (6-8) J Senior (9-12)

Preferred Category (See page 5 for descriptions.)

7 - Environmental Biology

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.

Objective: ○The objective was to determine if coliform or E. coli bacteria is present in the Tule River watershed. After reading my research, I think I will find bacteria in water exposed to animal wastes and animal pasture runoff.

Materials and Methods:

○Phase 1, trials 6, 7, 8, 9, 10, 14, 15, and 16 were designed to test for the presence of coliform and E. coli bacteria in the Tule River watershed. 100 ml water samples were collected in various locations based on exposure to animal waste. Trials 14 and 15 were designed as control samples. Trial 14 used bacteria free water, which had animal waste introduced; Trial 15 utilized bacteria free snow water.

○Phase 2, trials 1, 2, 3, 4, 5, and 8 tested for the presence of bacteria in private wells with different filters and had holding systems.

Results: In phase 1, 100% of water samples tested positive for bacteria. I found out that animal waste contaminates the water with bacteria. Livestock generally do not get sick from ingesting bacteria in water. In phase 2, 40% of the wells tested positive for bacteria. The water stored in fire suppression tanks tested positive for bacteria. Humans can get various diseases from drinking water contaminated with bacteria.

Conclusion: In phase one, based on the results of trial 14, this researcher conclusively proved that animal waste contaminates water with coliform bacteria. In phase 2, based on the results of trial 1, this researcher concluded that ground water in new wells do not have bacteria. Based on the results of trials 4 and 5, fire suppression tanks might contribute to the presence of bacteria.

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

My project is about the presence and effects of bacteria in the Tule River watershed.

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.

John Maley provided water sample bottles and MMO-MUG; Ha LE showed me how to test for bacteria at the Tulare County Health Department; SPUD explained about the use of bacteria in sewage treatment; Jamie Wilson D.V.M. discussed how bacteria affects animals