



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<b>Your Name</b> (List all student names if multiple authors.) <b>Henock Gebrekidan</b>	<b>Science Fair Use Only</b>  <b>S1199</b>
<b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>Honey, I Leaked the RAM!</b>	<b>Division</b> _ Junior (6-8) <u>X</u> Senior (9-12)
<b>Preferred Category</b> (See page 5 for descriptions.) <b>6 - Electricity &amp; Electronics</b>	
<b>Abstract</b> (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.	
<p>The objective of my experiment is to prove that leaking RAM can affect a computer's performance when the computer is left running for a twenty-four hour period. Leaking RAM occurs when a program fails to remove one or more files that it uses (e.g. .dll, .ocx, etc.) from the RAM. Because these files take up space within the RAM, other programs will take longer to open because the computer needs to set up a virtual memory file on the hard drive, which has a much lower access time than the RAM. From here, the memory available slowly "leaks" away as time wears on. This led me to my hypothesis that programs take longer to finish loading after memory has leaked from the system. The methods I used to conduct my experiment were as follows: I turned my computer on and immediately started to time how long selected programs took to finish loading. I then rebooted the computer, opened and closed several programs, attempting to leave a few files in RAM. I left the computer on for twenty-four hours and timed again how long the same selected programs would take to load. The results came out how I expected them to: the programs that I selected to time would take longer to load after twenty-four hours compared to when the system was first booted. This is because when the computer is first booted, there is a minimal amount of "leftover" files in the RAM. Identifying the program allocating the memory improperly was a simple yet unreliable task: I downloaded an application that would indicate how many files (if any) were being left in RAM after shutting a program down. The program leaving the most data in RAM would be my "culprit".</p>	
<b>Summary Statement</b> (In one sentence, state what your project is about.) My experiment is centered around investigating if leaking RAM affects a computer's performance, attempting to discover what program leaks the RAM, and searching for what aspect of the program leaves excess files in the RAM.	
<b>Help Received in Doing Project</b> (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. I have not received any help in performing this experiment.	