



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> David K. Knittel	<b>Project Number</b> <b>J0614</b>
<b>Project Title</b> <b>Memory: The Effects of Various Types of Sensory Perceptions on Short-term and Long-term Memory</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This project was performed to determine which types of sensory perception (visual, aural, or tactile) resulted in stronger short-term and long-term memory for humans.</p> <p><b>Methods/Materials</b> Subjects of varying ages and genders were selected to view three groups of flash cards with objects and/or words for 60 seconds, then they were asked to recall as many objects as possible. 20 words were read aloud and the process was repeated. Lastly a box of objects was presented that the participant could touch, then they were asked to recall as many objects as possible. Test subjects were called the next day to test their long-term memory.</p> <p><b>Results</b> The data was studied with bar graphs and revealed that seeing and touching items resulted in the strongest short-term and long-term memories (63% and 31%, respectively). Sight alone resulted in the second strongest memories, with little difference between color or black and white images or words. The least effective method was to hear the object name. Middle-aged people had better short and long-term memories. Gender-based results were inconclusive.</p> <p><b>Conclusions/Discussion</b> Humans remember simple objects differently depending on how many and which senses are stimulated. Human beings remember more objects when they can touch and feel them rather than only seeing or hearing them. Changing the order of the tests for future subjects would help to determine if the subjects were losing attention, thus skewing the data. There is a Chinese proverb that says: 'I hear, and I forget. I see, and I remember. I do, and I understand.' The data in this experiment supports the Chinese proverb. Hearing was the worst category. Sight was the second best. Finally, touching and seeing were the strongest.</p>	
<b>Summary Statement</b> Humans remember simple objects differently depending on how many and which senses are stimulated.	
<b>Help Received</b> Mother helped type; Father helped with graphs and analysis.	