



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Rachel E. Richey</b>	<b>Project Number</b> <b>J1124</b>
<b>Project Title</b> <b>How Does Age Affect the Human Eye's Ability to Adapt to Darkness? Why Can't Grandma Find a Seat at the Movies?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My project is to determine whether the age of a subject has a significant effect on how quickly their eyes can adapt to the dim light in a darkened room and read a prepared sentence.</p> <p><b>Methods/Materials</b> A small, hand held eyes chart for visual screening A large, dark closet(without windows) with 2 light fixtures(4 60 watt light bulbs) A small night light containing a 4 watt clear bulb, wrapped in a capsule of white material desired dimness taped into place on a high shelf A printed passage of two basic sentences to read in large type(font 18) A standardly positioned chair A stop watch</p> <p>The subject sits in a well lit closet for three minutes, filling out an information sheet and having their vision screened. The lights are then turned off and the door closed. Only a small very dim night light remains on. They are timed as to how fast they can read a passage of 2 sentences in large type from a card they turn over on their lap when the room is darkened.</p> <p><b>Results</b> The group of subjects over 40 had a very difficult time adapting to the dim light compared to the younger subjects. The dramatic change occurred with the over 40 age group where it took an average of 12 minutes and 34 seconds to be able to read the sentence.</p> <p><b>Conclusions/Discussion</b> Based on the results of this experiment, age definitely has a significant effect on how the eyes adapt to darkness. Particularly after 40 years of age, it takes a subject a much longer time to adapt and be able to read in a darkened room.</p>	
<b>Summary Statement</b> I tested how age affects a person's ability to read written text under extremely low light conditions.	
<b>Help Received</b> Parents helped recruit subjects, Grandmother gave me the idea	