



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Joseph M. Shell	Project Number J1513
Project Title The Amazing Slime Mold, Physarum polycephalum	
Abstract Objectives/Goals The objective of my project was to independently confirm the results of a Japanese scientist named Dr. T Nakagaki who observed that the physarum polycephalum developed pseudopodia connecting two food sources along the shortest path in a maze. I predict that my cultures of slime mold will exhibit #maze-solving# behavior at least a few times. Methods/Materials In my procedure, I cultured the physarum polycephalum protist so that I would have enough of the growing organism to place in ten plastic-film mazes. Then I cultured the slime mold inside the maze until the protist filled the whole space between the plastic-film barriers. Then I placed the food at the two endpoints of the maze on top of the slime mold culture and observed its behavior. Results Of my ten trials, three of the slime mold cultures grew pseudopodia connecting the two food sources, but not along the shortest path in the maze. Conclusions/Discussion I have concluded that my hypothesis was partially correct. My cultures grew pseudopodia connecting the two food sources. This is the same #maze-solving# behavior discovered by Dr. T Nakagaki that allows the physarum polycephalum to select the shortest path through the maze under proper laboratory conditions.	
Summary Statement To test the behavior of a culture of slime mold, I made a maze and grew the physarum polycephalum in that maze to see if it would connect the two food sources along the shortest path through the maze.	
Help Received I received help from my mom with my display board and my dad for helping me understand the project.	