



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Julia F. Ostmann	Project Number J1717
Project Title The Lego Experiment: Does Gender Play a Role in the Ability to Create a 3D Object from a 2D Representation?	
Objectives/Goals My experimental objective was to determine whether gender plays a role in the ability to create a 3D object from a 2D representation.	
Abstract	
Methods/Materials Materials: 150 2 x 4 full-height Lego bricks 1 computer with Gryphon Bricks software 20 printed pictures of experimental 3D object 1 stopwatch 1 camera Procedure: A. Design a 3D shape out of identical Lego bricks on the Gryphon Bricks computer program. B. Print 20 representations of the front and rear views of the 3D shape. C. Recruit 20 subjects, 10 male, 10 female, ages 11-13, all in the 6th grade. D. Give each subject 14 Lego bricks and a 2D representation of the object. E. Record the time taken to recreate the object in 3D. F. Evaluate the accuracy of each recreated object. G. Calculate the average time, accuracy, and composite performance score for all subjects. H. Record the data on a chart. I. Analyze the data and come to a conclusion.	
Results Male subjects were faster but less accurate, and female subjects took more time but made fewer errors. On a composite scale using a ratio of accuracy to time, male subjects outperformed female subjects.	
Conclusions/Discussion Gender plays a role in the ability to create a 3D object from a 2D representation. My hypothesis was correct. Male subjects performed better overall on the test.	
Summary Statement My project demonstrates that males perform better on certain spatial ability tasks when comparing sixth grade boys and girls.	
Help Received Parents helped edit report and obtain materials.	