# CALIFORNIA STATE SCIENCE FAIR
## 2008 PROJECT SUMMARY

**Name(s)**
Kelcie E. Williams

**Project Number**
**J0631**

**Project Title**
## Inside Cognition and Spatial Ability

**Abstract**

**Objectives/Goals**
Does sexual differentiation in people lead to differences in their Cognitive or Spatial Abilities?

**Methods/Materials**
40 Plus male & female subjects were tested in: Mathematics, Object Identification/Location, & Ship Model Construction, using Legos as a substrate. Materials included, math work sheets & books, "Where's Waldo" graphics and Lego Ship Building Kits.

**Results**
Each participate had their identity blocked and were assigned an identification number in all tests. Results were treated as a population of data for Boys and Girls, respectively. Boys on average took a shorter period of time to complete their tests (73%) as compared to Girls (94%) in any given time period. The differences were statistically significant.

**Conclusions/Discussion**
The hypothesis suggested all boys and girls would show differences in their Spatial and Cognitive abilities. However, my data clearly shows sexual maturation plays a vital role in the laying down of new neural pathways for structural modifications in their distinctive abilities to locate visually a figure, "Waldo" in a complex graphical background and remembering the layout of a ship, completing its construction, under a time constraint. Both populations of the sexes showed similar aptitude in mathematical abilities, contradicting the "general belief boys are better at math than girls". Furthermore, sexual differences were blurred in the pre-developed populations of boys and girls, in the elementary school test group.

**Summary Statement**
Do males and females develop different pathways to Cognition and Spatial Processing as they age.

**Help Received**