



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Craig M. Louie	Project Number 22338
Project Title The Effects of Cable Variances on Fiber Optic Signal Attenuation	
Abstract Objectives/Goals To demonstrate fiber optic's capability as a medium for transmitting voice data and to test the effects of cable variances on fiber optic signal attenuation. Methods/Materials I constructed an apparatus to test various fiber optic cable variances. Materials include: audio microphone, transmitter assembly, transmitter LED, batteries, receiver assembly, photodetector, audio speaker, audio tape player, simple tone generator, ammeter, emery cloth, oil, plastic unclad acrylic media, plastic fiber optic cable, micron glass core fiber. Results I was able to transmit voice data over fiber optic media. The fiber optic signal strength was affected by cable materials, cable lengths and effectiveness of coupling means. Conclusions/Discussion Fiber optic signal attenuation can be the result of several factors, including fiber optic cable materials, cable coupling and characteristics of the light source.	
Summary Statement Researching and experimenting with fiber optic communications.	
Help Received Parents' support, assistance, and acquisition of materials;conferred with two professionals who work in the field of fiber optics.	