# CALIFORNIA STATE SCIENCE FAIR
# 2011 PROJECT SUMMARY

**Name(s)**
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**Project Number**
31302

**Project Title**
## Antimicrobial Brass in Aqueous Medium

**Abstract**

**Objectives/Goals**
The purpose of the project is to identify metals that can safely produce clean water for places where accessing uncontaminated water is an issue.

**Methods/Materials**
We first determined what metals exhibit a antibacterial effect by analyzing their effect on E. coli OP50 in a bacterial lawn. Next, we took the metals that did show an effect and measured each of their relative potency. For this procedure, we put each metal into an inoculated flask of bacterial broth and periodically measured the broth's absorbance in a spectrophotometer. Lastly, we repeated this with different compounds of brass.

**Results**
In the initial experiment, silver, copper, zinc, and brass displayed "zones of clearing" in the agar. In the flasks, silver had the greatest potency, followed by brass, copper, and zinc. Lastly, Brass 230 had a higher antibacterial effect than Brass 260.

**Conclusions/Discussion**
Because silver is expensive and also causes skin to turn blue, a disease called argyria, brass is the more optimal metal to employ as a antimicrobial agent in filters and among daily things such as doorknobs, subway handles, etcetera.

**Summary Statement**
Our project was to determine which antimicrobial metal had the greatest potency in stunting the growth rate of E. coli OP50 and to find practical applications for said metal.

**Help Received**
Worked in science lab under the supervision of Dr. Wenzel at school.