## Name(s)
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## Project Title
**Impact of Nanoparticles on Human Analogs**

### Abstract
For my project, I studied the mechanical and toxic effects of commonly occurring nano particles on ciliated organisms and bacteria-used as human analogs. I predicted that the nano particles would be able to slow the movement of the cilia, meaning that it would be able to enter the human body. I also thought that there would be signs of inhibition on the plates of bacteria when exposed to the nano particles, indicating a harmful chemical effect.

### Objectives/Goals
I chose to use the smallest possible sizes of these materials to understand the impact of the effects of nano-sizes. Experiments were carried out with Titanium Dioxide, Carbon, and Chromium on Spirostomum ambiguum, Blepharisma americanium, and E. coli.

### Methods/Materials
Experiments were carried out with Titanium Dioxide, Carbon, and Chromium on Spirostomum ambiguum, Blepharisma americanium, and E. coli.

### Results
It was found that dilutions of even 30% can cause significant reduction in the motion of these ciliated organisms. The bacterium did not show any adverse toxicity effects of the nanoparticles # a good thing because the materials that I tested are all around us.

### Conclusions/Discussion
In conclusion, part of my hypothesis was correct; the nano particles slowed the movement of the ciliated protists. The other part was not supported by my data; the E. coli plates showed no signs of inhibition of growth. For the future, it will be interesting to extend these studies to deep nano sizes and other human analogs.

### Summary Statement
The goal of my project was to use human analogs, ciliated protists and bacteria, to understand if common nano particles could be harmful to human health.

### Help Received
Used lab equipment at Schmahl Science Workshop under supervision of Mrs. Sarah Thaler