

# Problem Statement

- Washing clothes in microgravity environments is currently impossible.
- Limited space, weight requirements, and hygienic needs make washing clothing a necessity for space exploration.

# Contact Us

Teacher: Raymond Gerstner

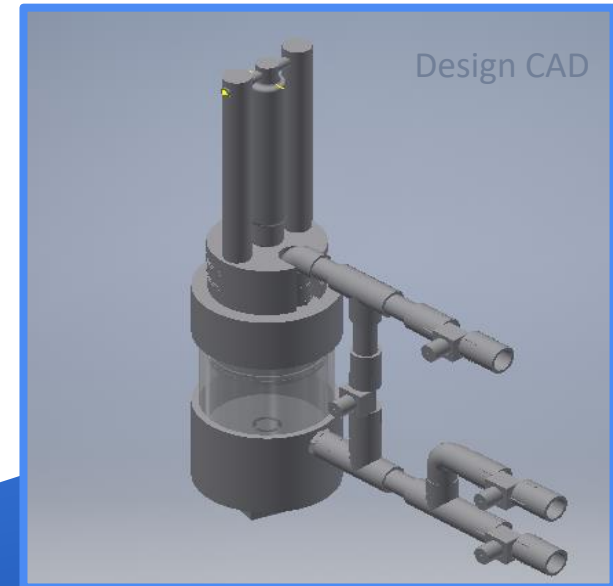
Glenelg High School  
Glenelg, MD 21737

Washing Machine Team Email:  
Glenelg.washingmachine@gmail.com

240-867-5309



# Microgravity Press Washing Machine



**NASA**  
**HUNCH**

**Students: Thomas Rohmann,  
Daniel Clark, Ethan Vernon**

**Teacher: Raymond Gerstner**

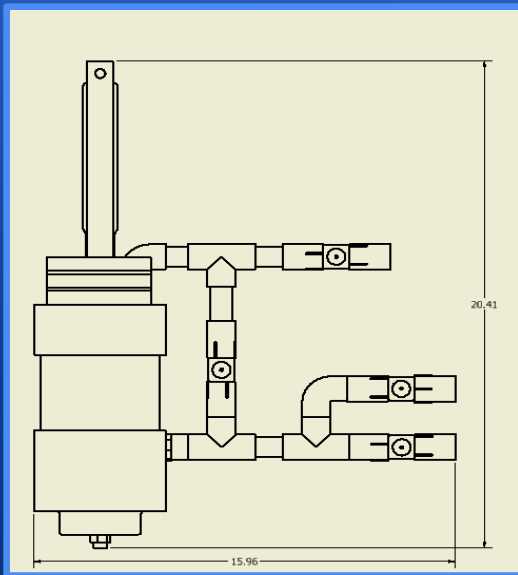
**Glenelg High School  
Glenelg, MD**



# Design Models

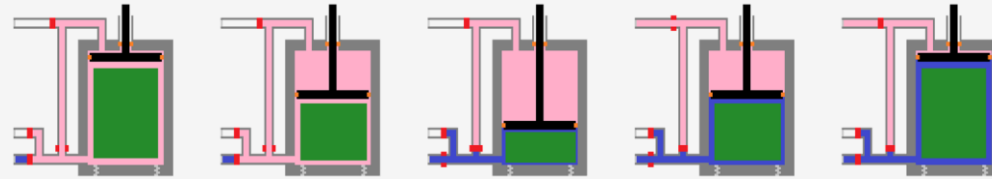


**Mockup prototype of washing machine**

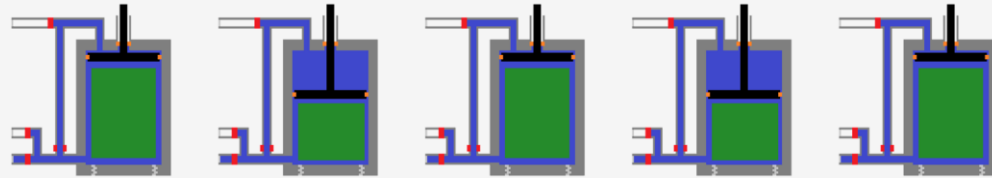


**Model fits in ISS Double Express Rack.**

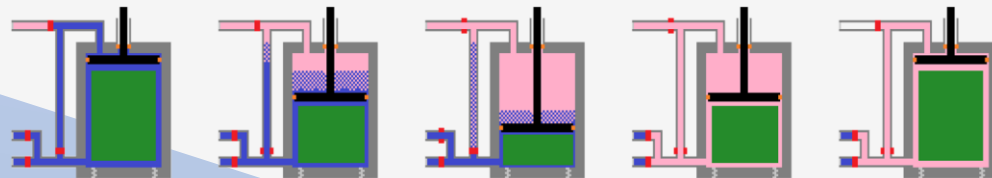
## Hydration Phase:



## Agitation Phase:



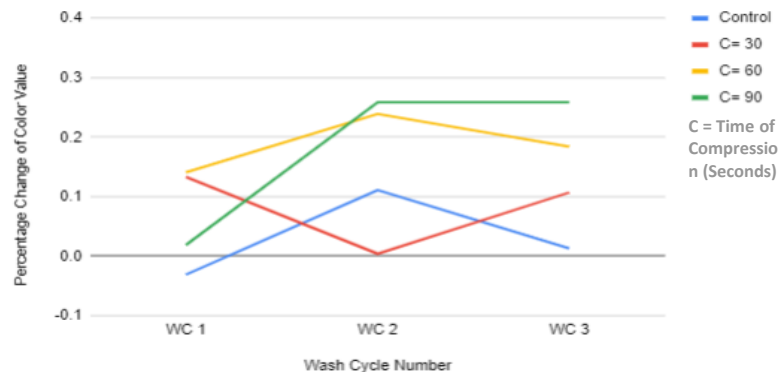
## Dirty Water Removal Phase:



Simple design allows for multiple steps of wash cycle to be done in the same chamber.

In the picture:  
 -Green is the dirty clothing  
 -Blue is water  
 -Pink is air  
 -Grey is the wash chamber  
 -Red are valves (open/closed)  
 -Black is the piston head

The Effect of Compression Time on Shirt Cleanliness



Agitation phase on mockup cleaned the shirt by as much as 26%.

Color analysis performed on ImageJ.

(downloaded from <https://imagej.nih.gov/ij/>)

Testing with mockup shows removal of water phase can remove up to 350 ml of the 500 ml of water used.

