

#SpaceMicrobes



Darlene

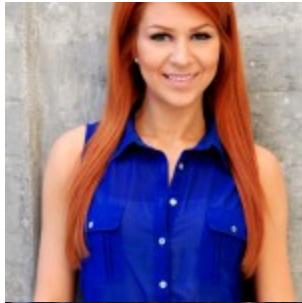


Darlene



Mark

Wendy



Darlene



Mark



Summer

Wendy



Darlene



Mark



Summer



Jonathan

Wendy



Darlene



Mark



Summer



Jonathan

Russell

Wendy



Darlene



David



Jenna



Mark



Summer



Jonathan



Russell

Wendy



Darlene



Debbie



David



Jenna



Mark



Summer



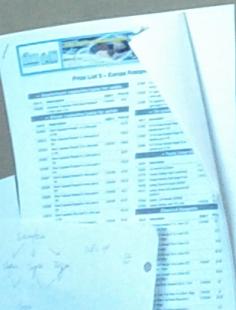
Claire



Jonathan



Russell







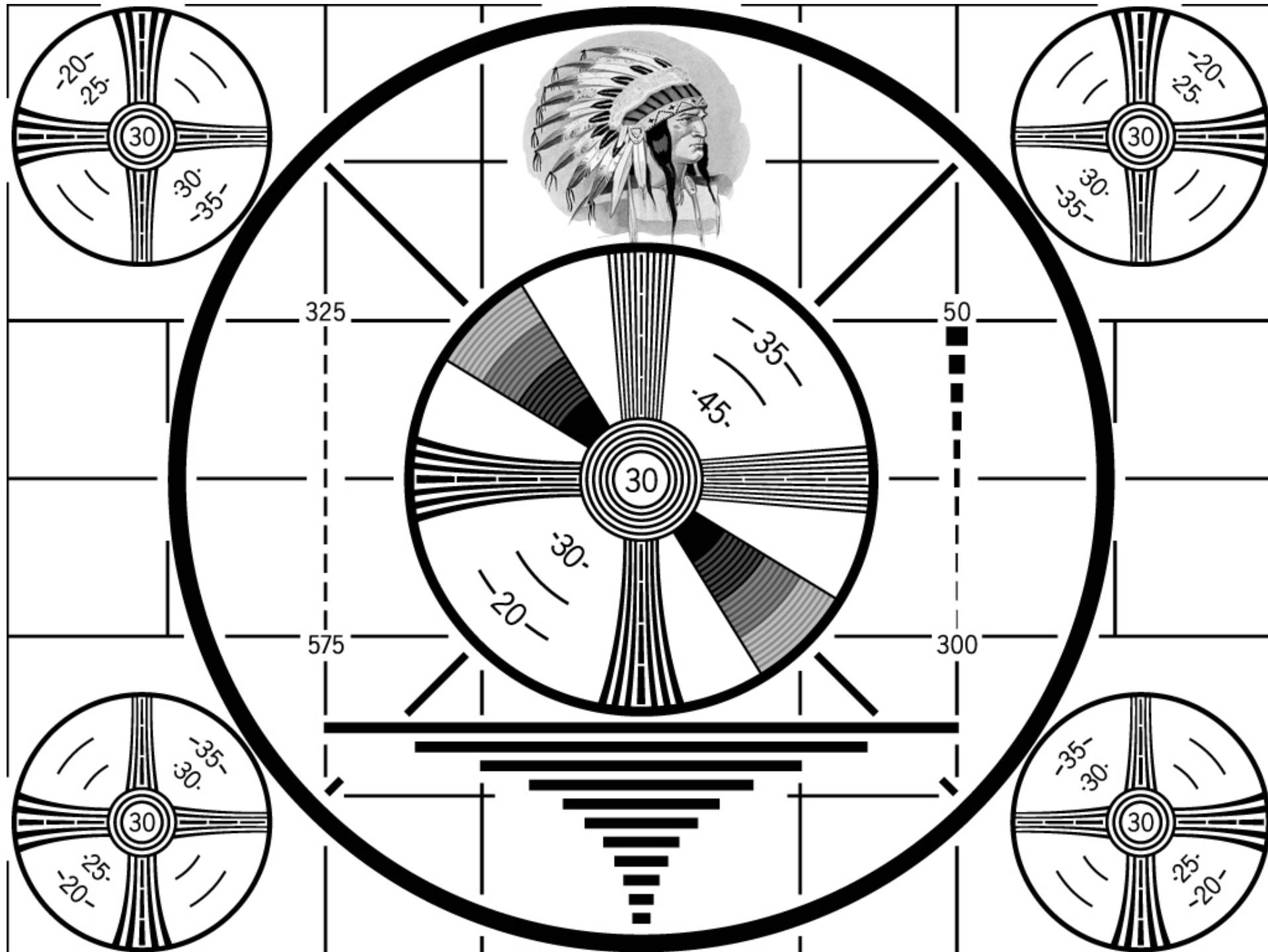














EISEN LAB
UC DAVIS

SPACE MICROBES

So, what was in the box?

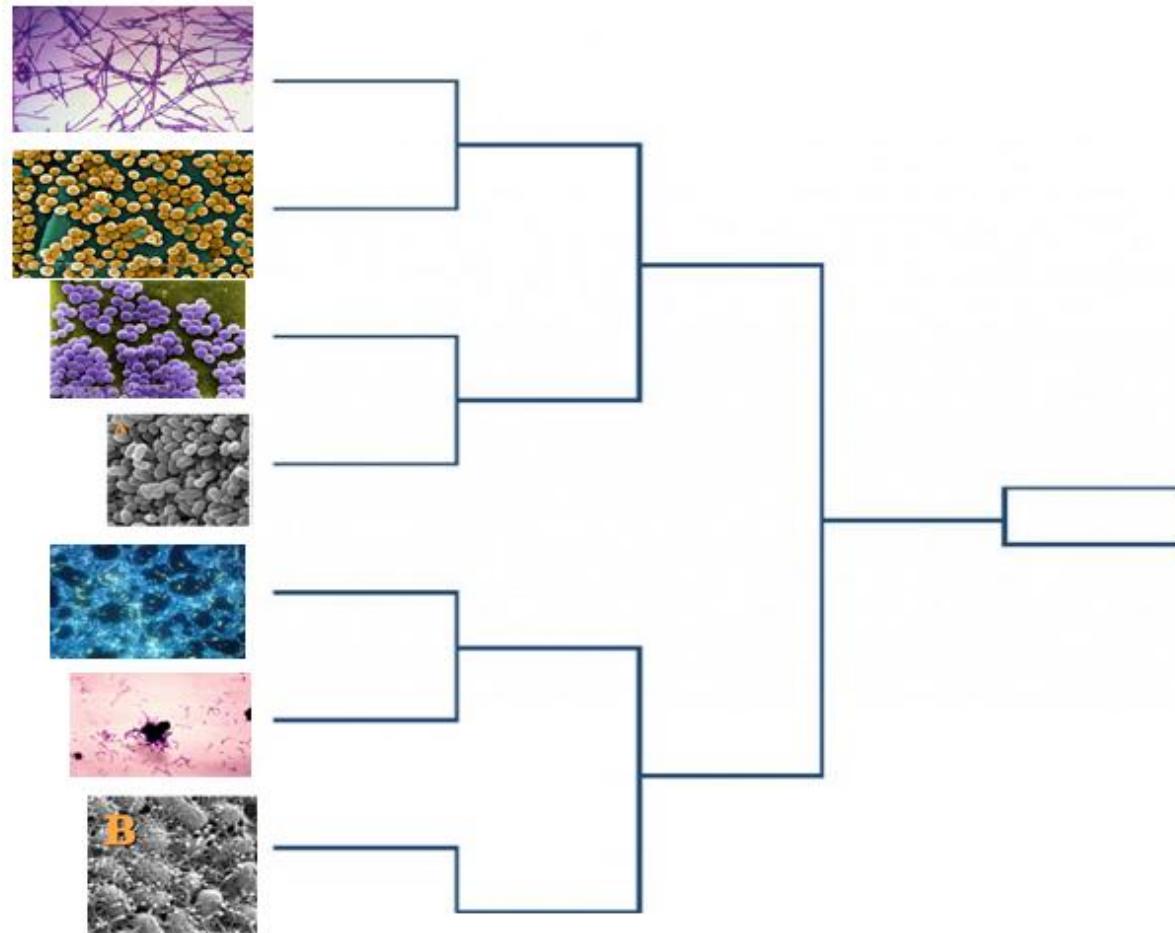
Ingredient 1 : Outreach





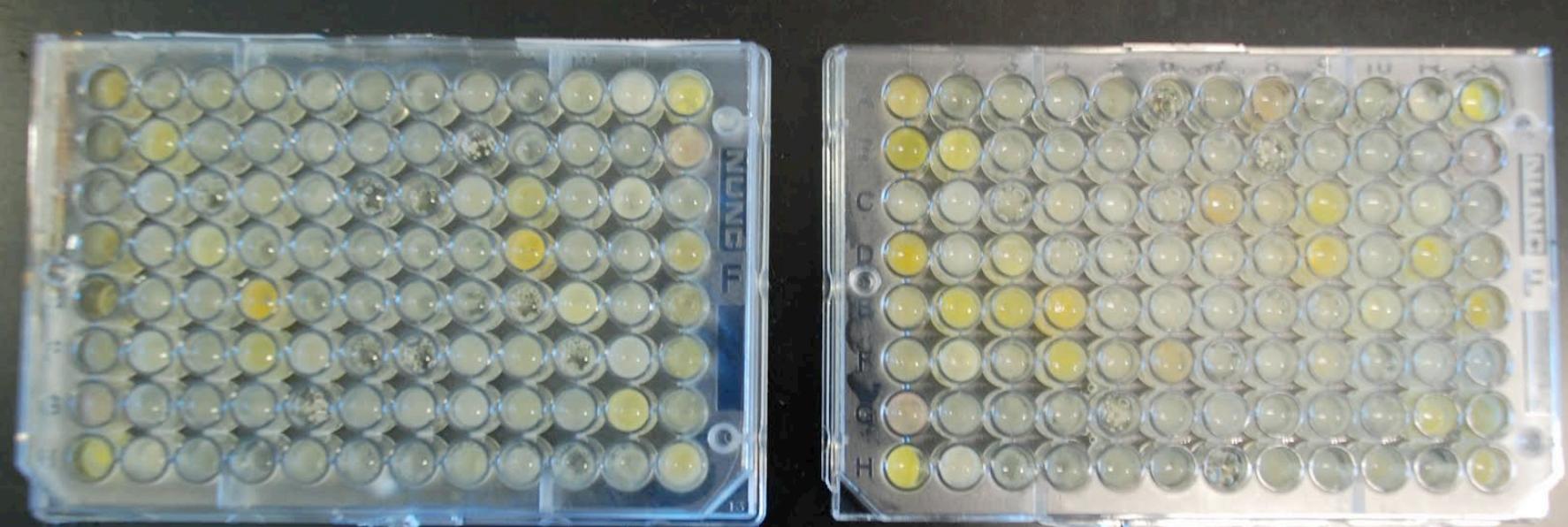
Haven't analyzed the shoes and phones data yet....

Ingredient 2 : Microbial playoffs









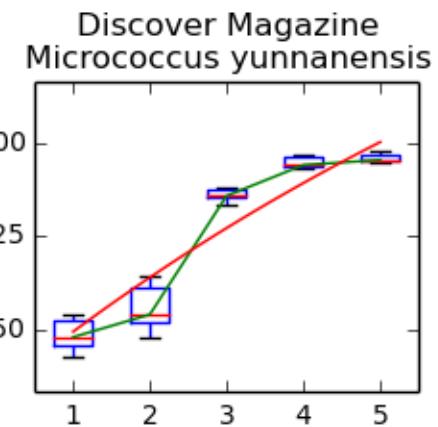
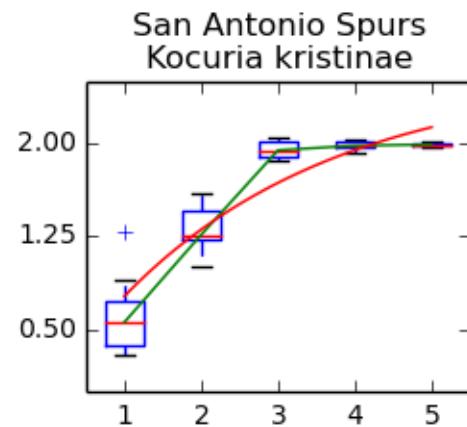
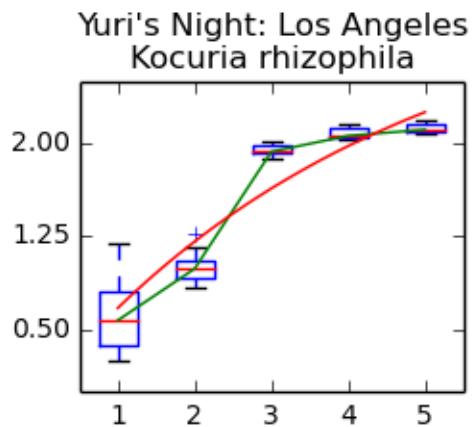
Space2

Ground2

The Winners!



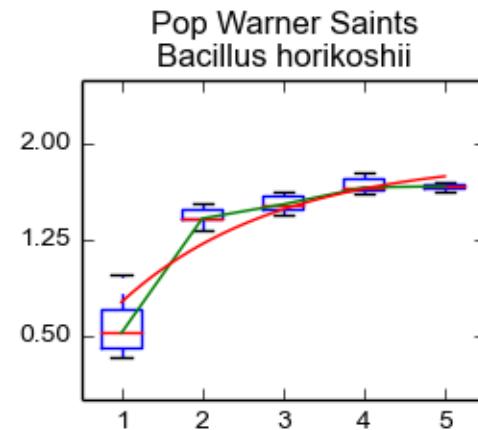
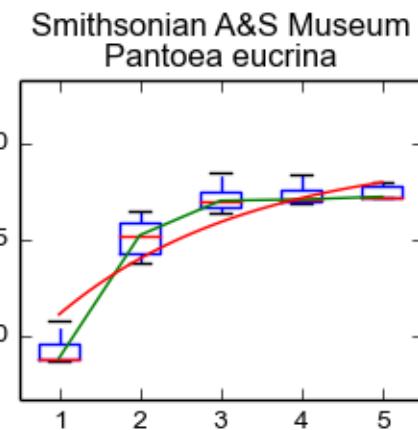
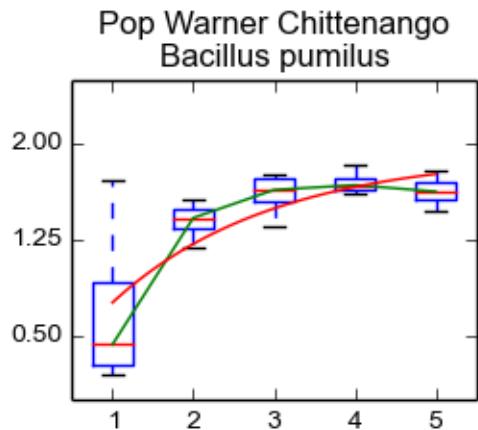
Best Huddle



The Winners!



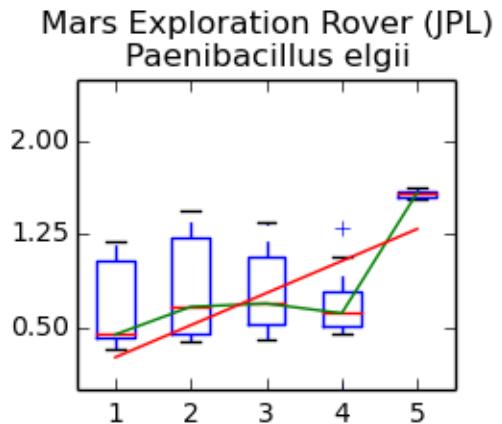
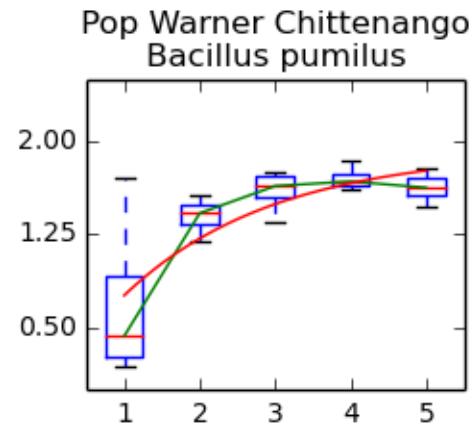
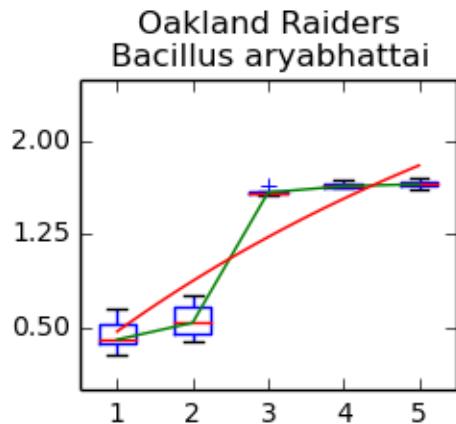
Best Tip-off



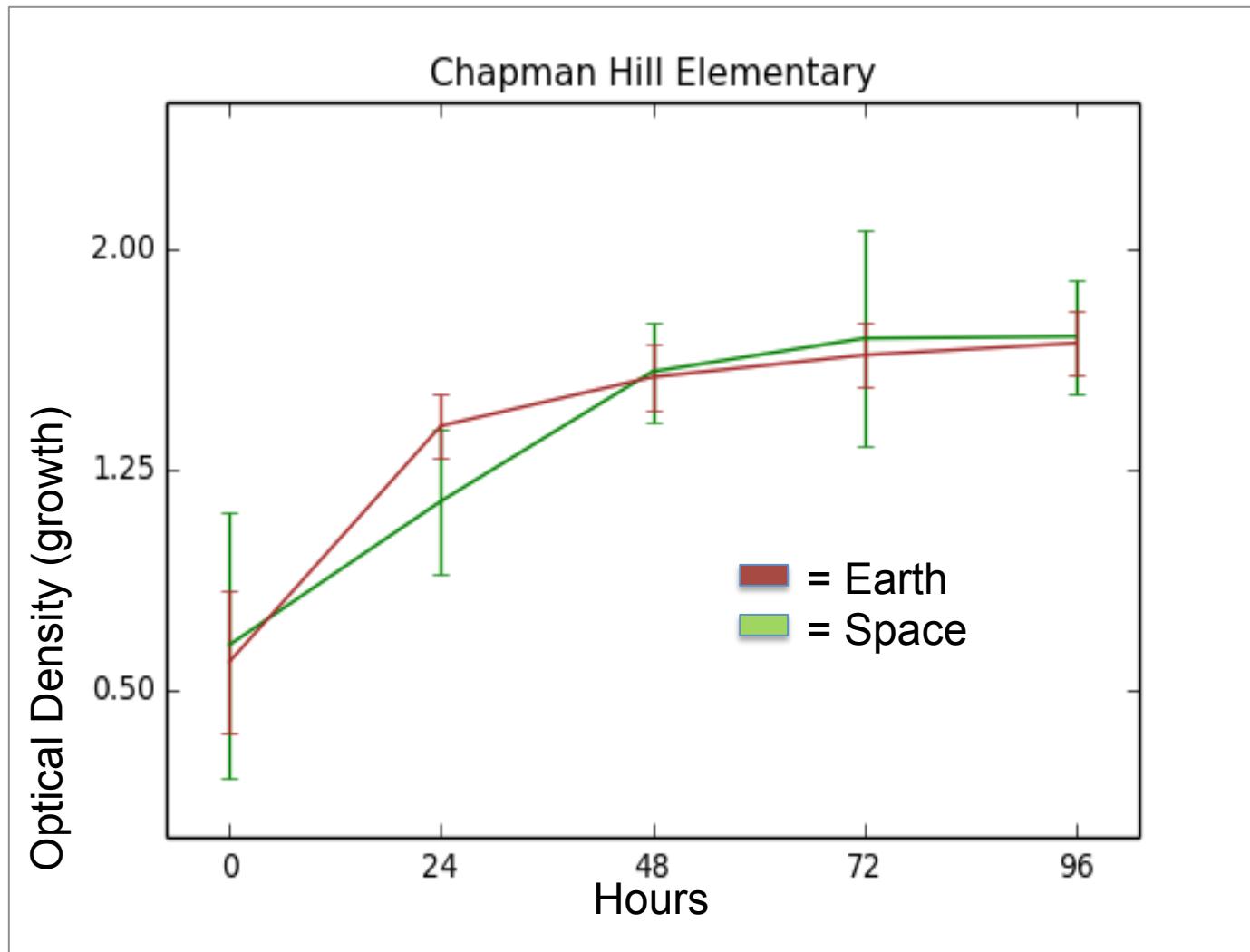
The Winners!



Best Sprint

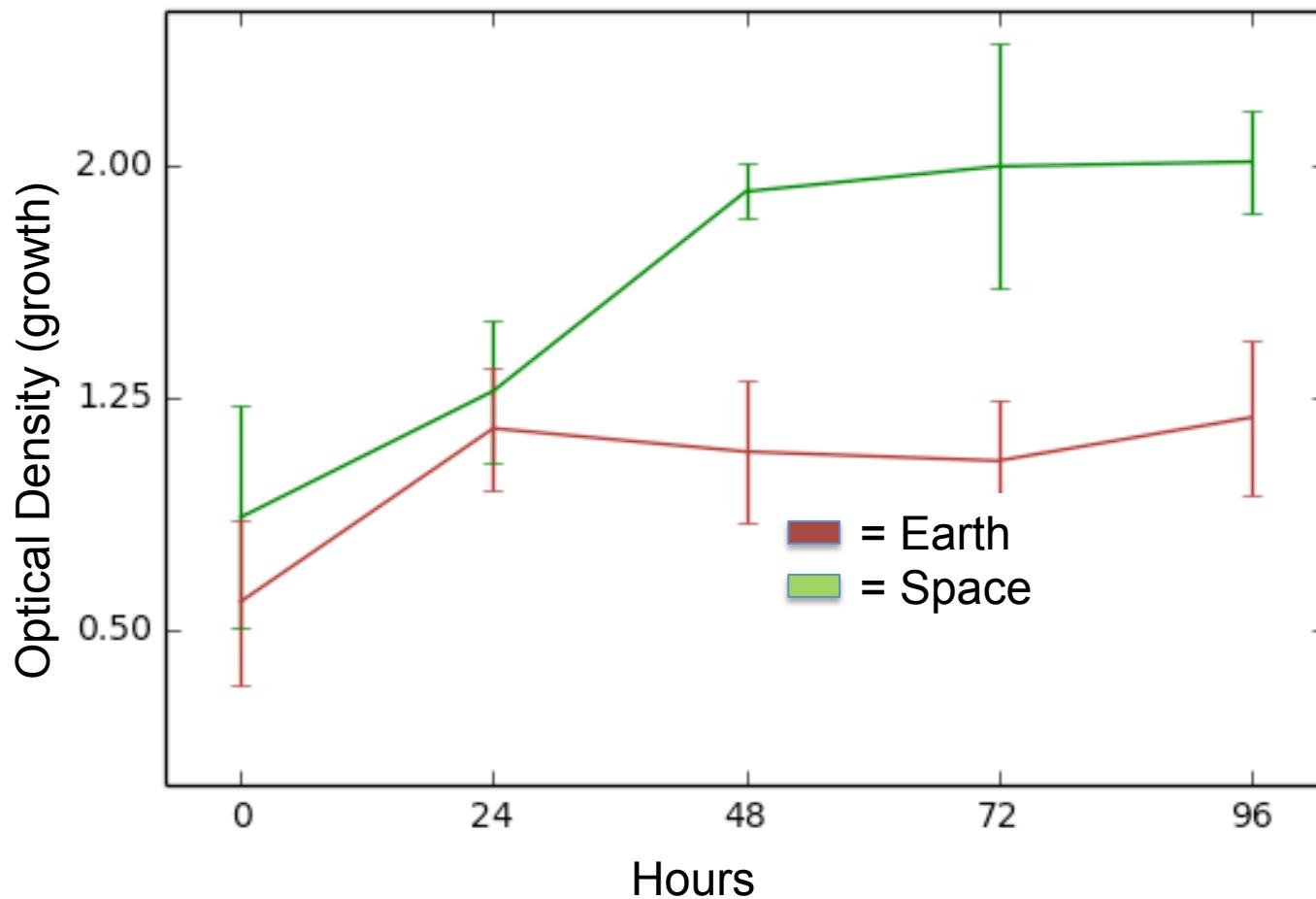


Comparison to Earth:



Comparison to Earth:

?



Bacillus safensis

Bacillus safensis



Where we found it:

On a Mars Exploration Rover before launch (2004) at the Jet Propulsion Laboratory (JPL-NASA, Pasadena, CA)

Why it's awesome:

This microbe was first discovered and characterized in the "clean" rooms where spacecraft are assembled at JPL.

Fun Fact:

This salt-tolerant microbe has been sent into space before, but on a Russian mission that failed during launch.

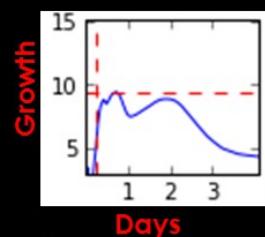
Regular Season Stats

Time to saturation: 17 hrs

Time to exponential growth: 6 hrs

Growth density: 63%

Description: Gram-positive, spore-forming, aerobic, chemo-heterotrophic



Originally isolated from: MARS Odyssey Spacecraft and associated facilities at JPL (1999-2001)

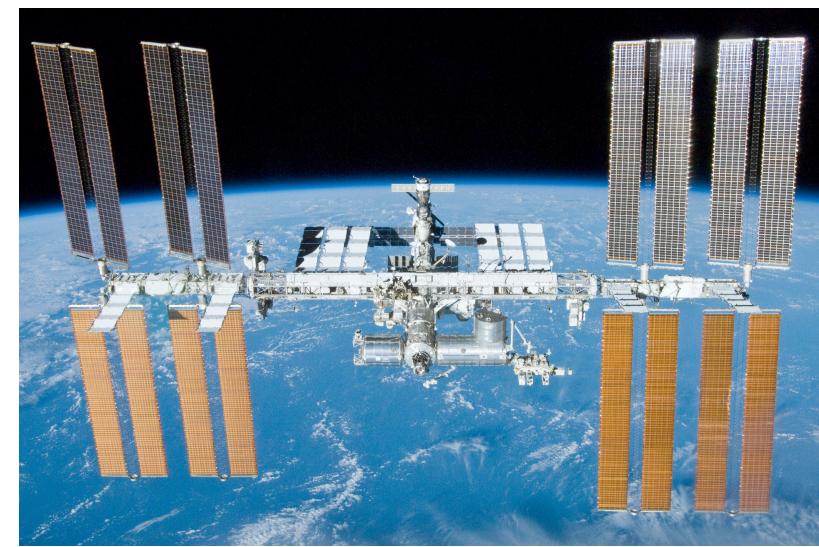
Ingredient 3 : Microbial survey of ISS

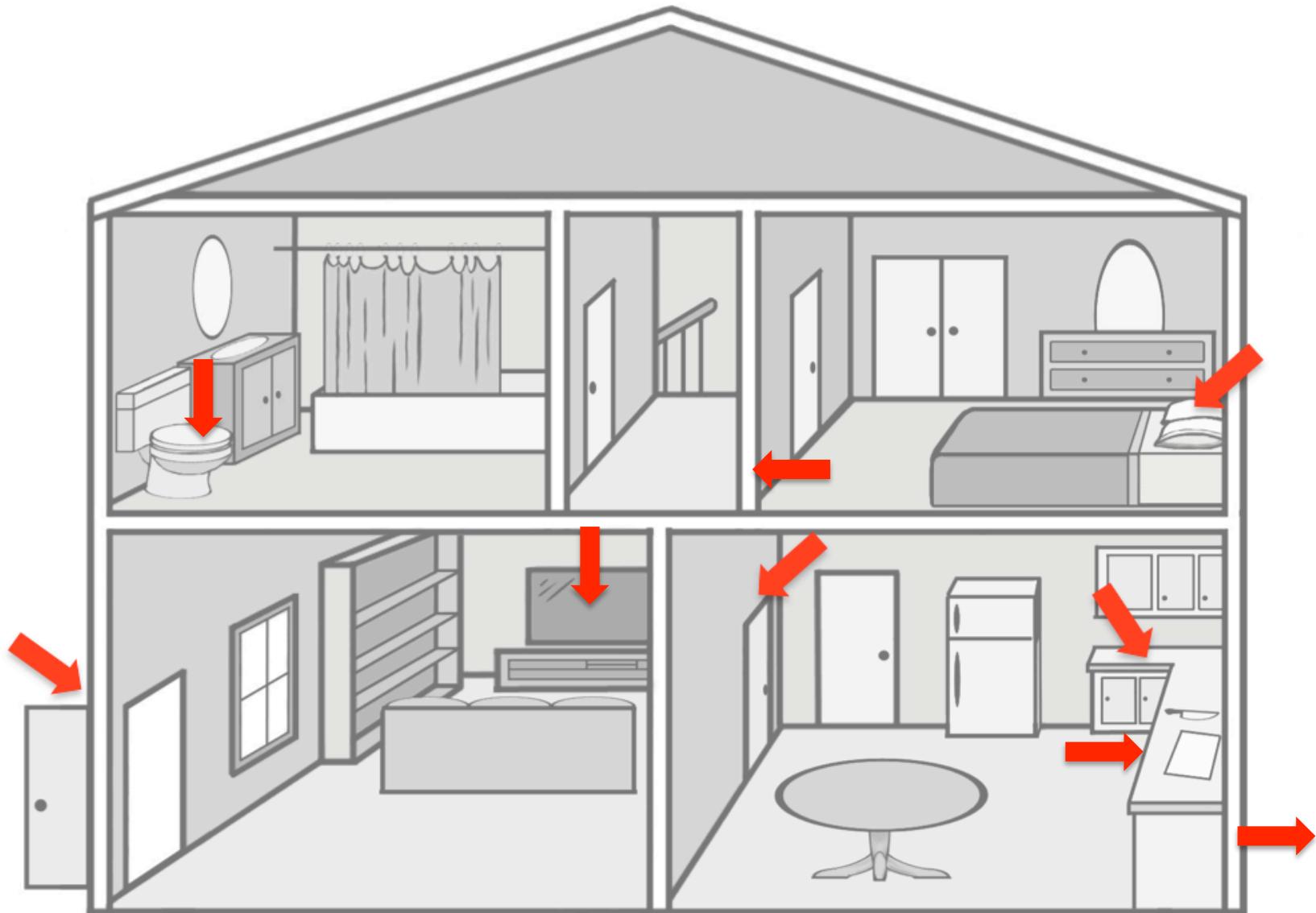




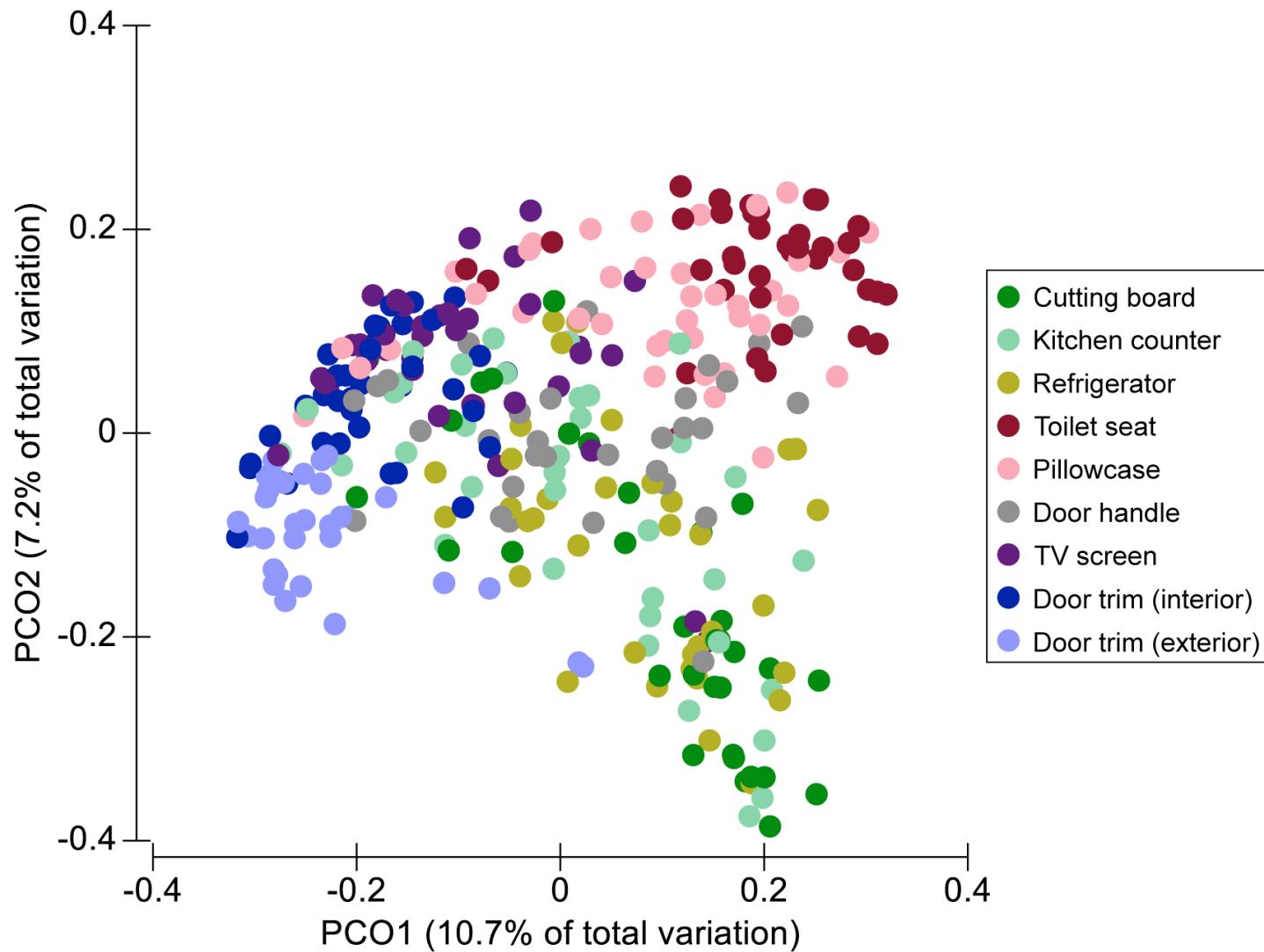
ISS Facts

- |Orbits every 90 minutes at 249 miles
- |17 years old
- |216 visitors
- |About 6 crew at a time
- |Current mission has two members staying for an entire year (normally 3-6 months)
- |You can't open the windows



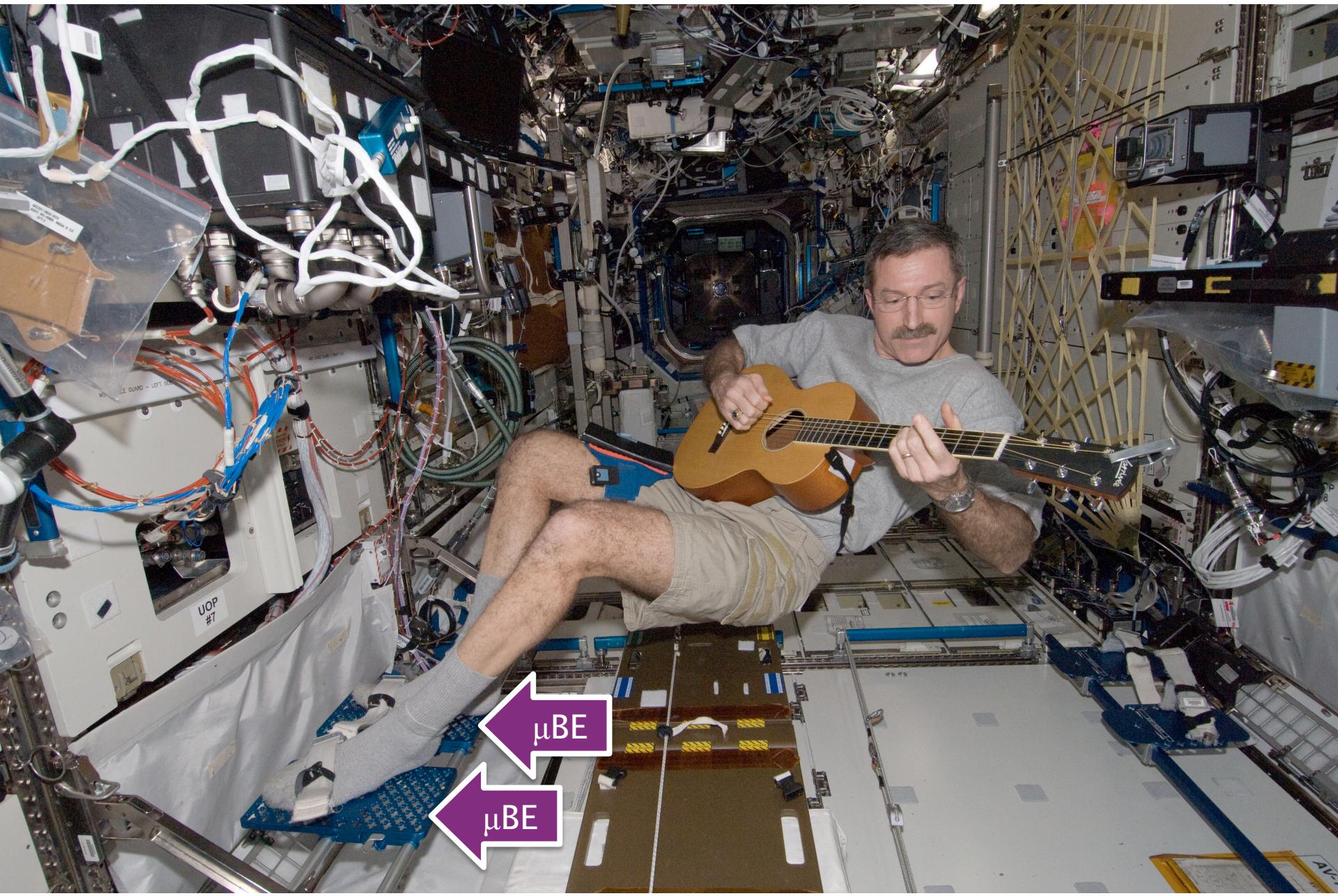


Home life: factors structuring the bacterial diversity found within and between homes.



Home life: factors structuring the bacterial diversity found within and between homes.





μ BE

μ BE



μ BE

μ BF



ISS017E011577



$\mu\text{BE} \times 2$

$\mu\text{BE} \times 2$

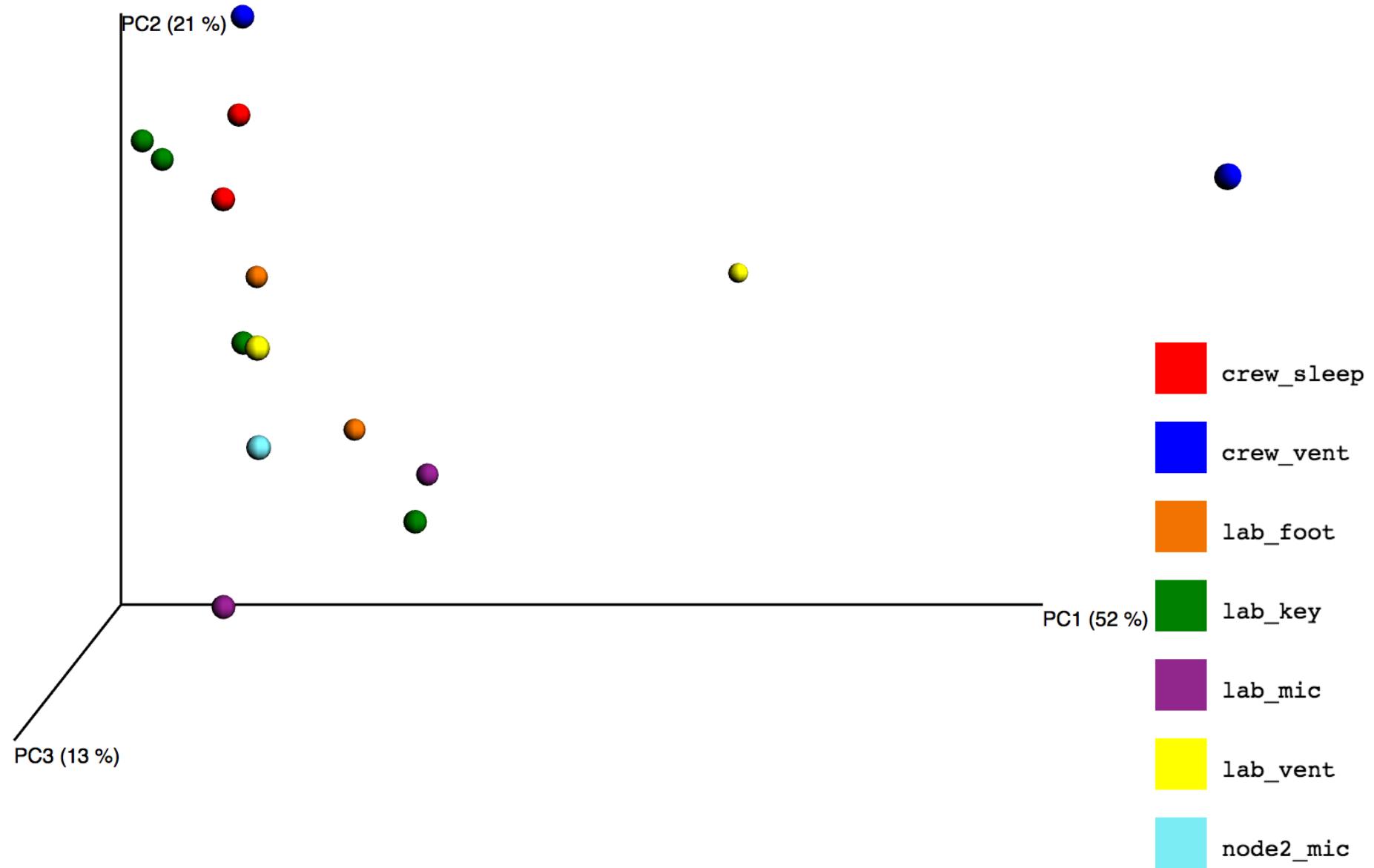
Circle Number of Location Swabbed
And Provide Other Requested Data
GMT Swab Time: ____ / ____ :

1. Lab Fwd ATU Hand Held Mic
2. Lab Aft ATU Hand Held Mic
3. Lab RWS PCS Keyboard
4. Lab RWS THC
5. Lab RWS Left Foothold (Inside)
6. Lab RWS Right Foothold (Inside)
7. Lab PCS or SSC Laptop Keyboard
PCS / SSC No. _____
8. Lab Express Rack Handrail
Rack No. _____ Left / Right
9. Lab Fwd Air Vent
10. Lab Aft Air Vent
11. STBD Crew Quarters Air Vent
12. STBD Crew Quarters Interior Nomex
13. Port Crew Quarters Air Vent
14. Port Crew Quarter Interior Nomex
15. Crew Choice Surface

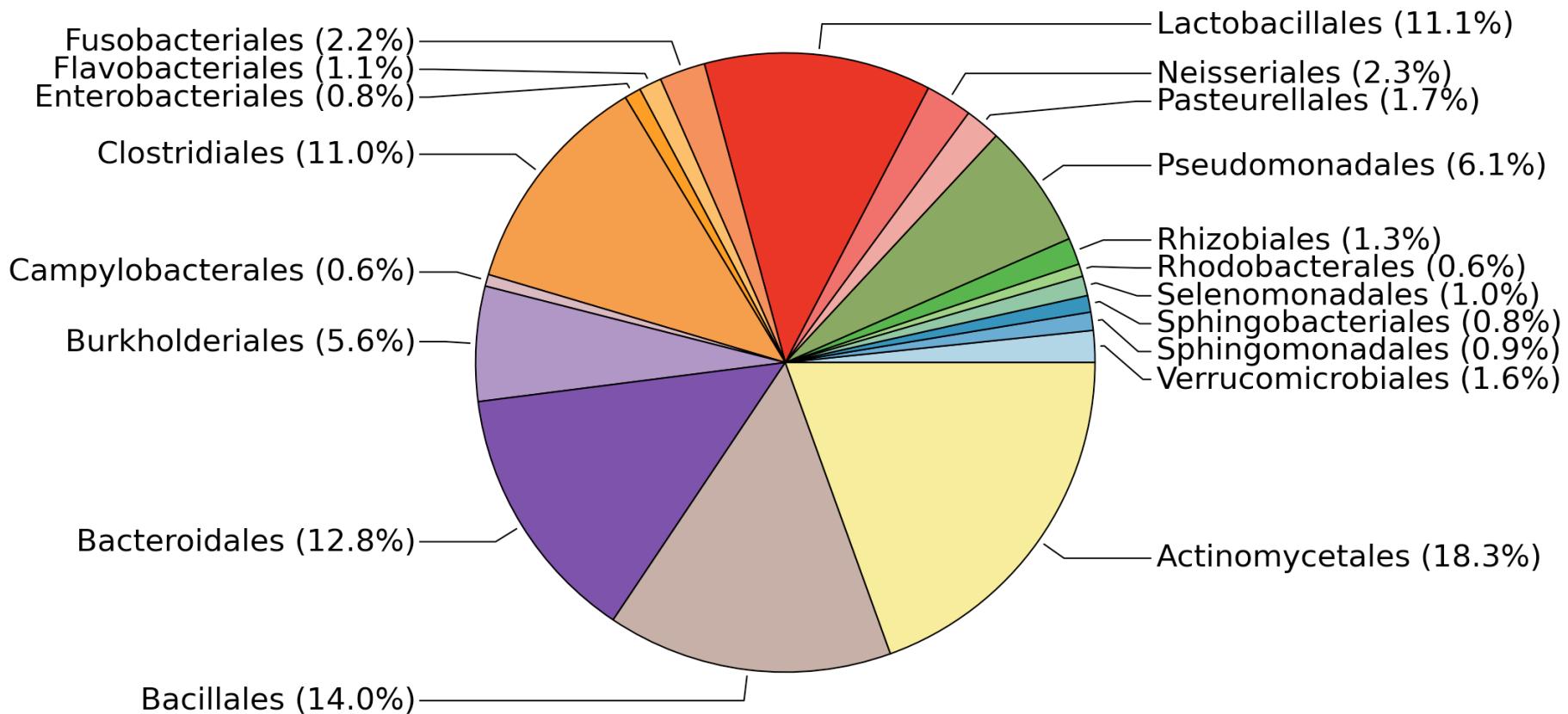
Puritan
STERILE
COTTON TIPPED APPLICATORS



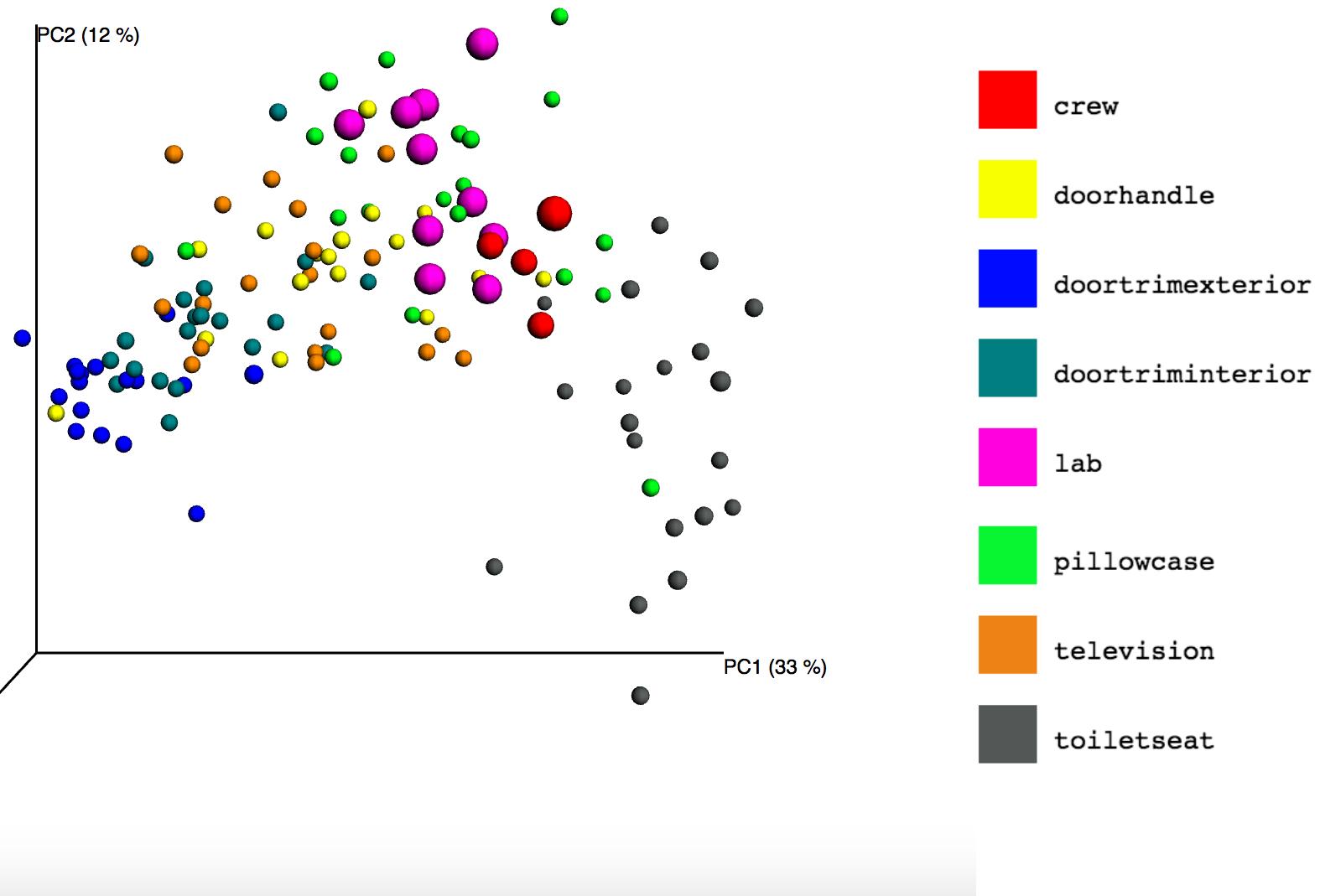
Puritan
STERILE
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APPLICATORS



Family composition of all 15 ISS surface samples



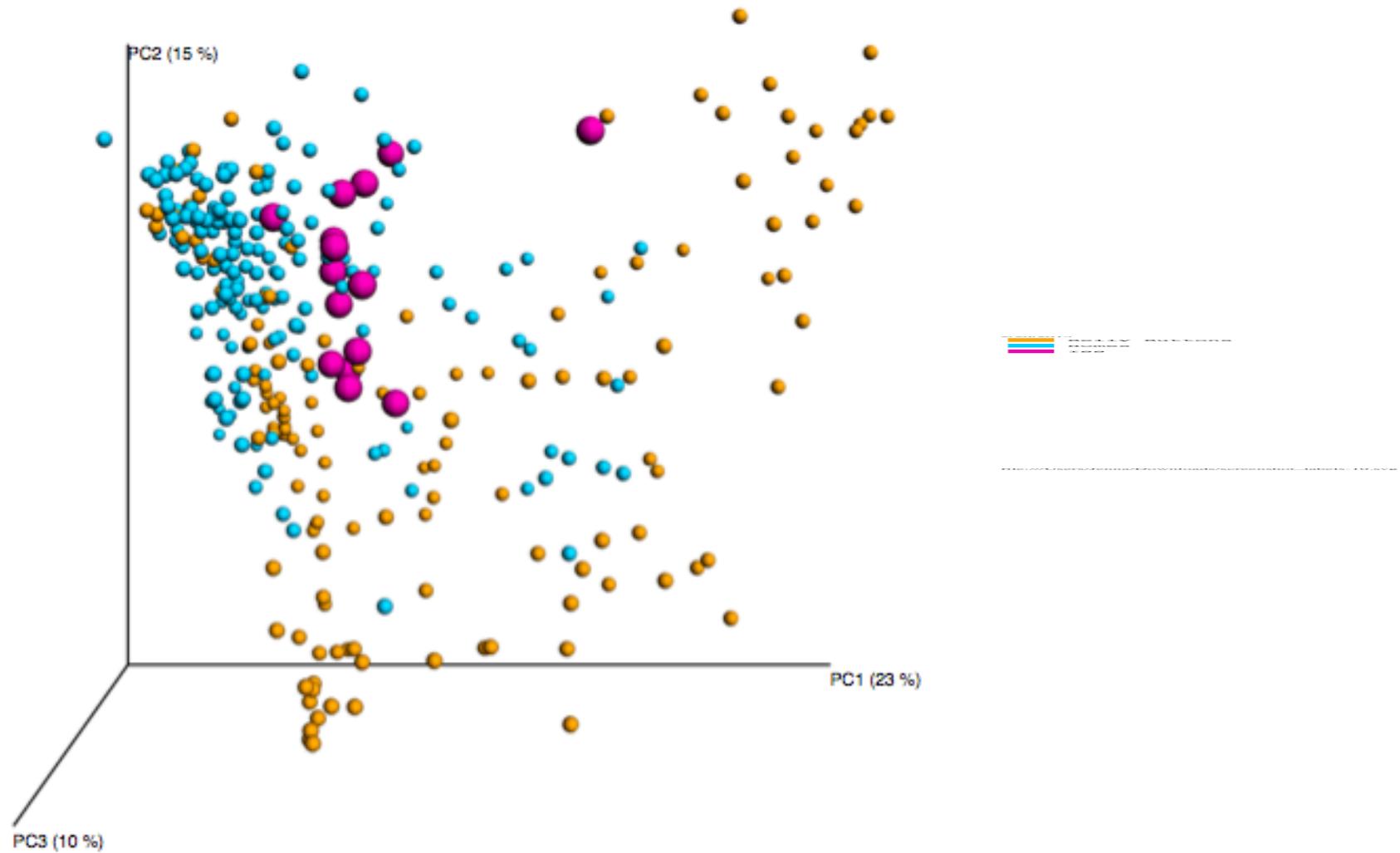
How do the ISS surfaces compare to surfaces in homes?



BELLY BUTTON BIODIVERSITY

The coolest study of biodiversity on the human body on the planet!





Results

- The ISS looks very much like a house
- A house looks very much like human skin
- Microbial growth kinetics appear mostly the same with or without gravity