Welcome Ladies and Germs ☺

FOX WEST ACADEMY

A Collaborative Learning Community

"Clean that technology before you get sick!"

by Christopher & Caleb

PHEOCS Investigation

Our topic involves testing different environments at school for germs. We will find out where germs are most common and what is the germiest item in school. We plan on testing:

-Keyboards or computer mice
-Tables
-Smart boards
-Whiteboards
-iPads
-Textbooks

PHEOCS Background Information

Project Required Questions

-How much bacteria is on a light switch?

--Light switches have up to 217 bacteria per square inch.

-How many germs are on a keyboard compared to a toilet seat?

--Keyboards have 60 times more germs than a toilet seat.

-How long can sneeze droplets stay on a surface?

--Sneeze droplets can stay on a surface up to 48 hours.

-How many phones have poop particles on them?

--16% of cell phones have poop particles on them. Poop particles are often found on phones due to people setting there phone on the bathroom floor.

Live Expert Questions

Live Expert Name: Rob

1. Would you be willing to answer a few questions?
2. What are your thoughts on the germiest places in a school?
3. Do you believe there are more germs in a technology based school or a traditional school?
4. Here is our procedures, do you have any recommendations?

Live Expert Answers

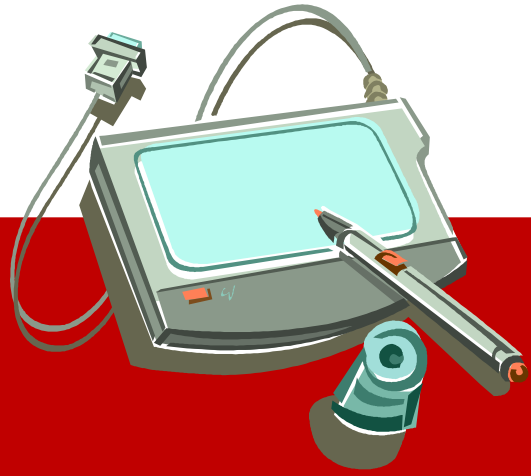
Name: Rob

1. Would you be willing to answer a few questions?
    1. Yes, I can only answer one question.
2. What are your thoughts on the germiest places in a school?
    1. Not answered.
3. Do you believe there are more germs in a technology based school or a traditional school?
    1. Yes, germs can stay on technology longer than other germs and exactly what germs are on these items is based on a persons hygiene.

Really Good Info @: http://www.webmd.com/parenting/features/germs-are-everywhere

Our Hypothesis

A TECHNOLOGY BASED SCHOOL will have more germs and bacteria than a TRADITIONAL SCHOOL.



Materials

"Included" Six petri dishes

"Included" Bag of agar {5 grams}

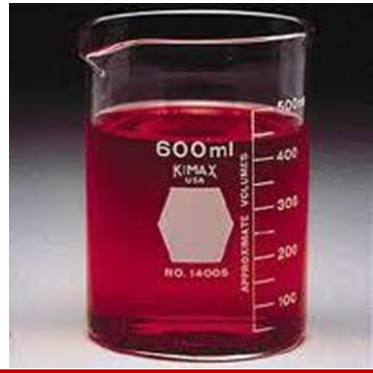
"Included" Six cotton swabs

"Included" Beaker to boil {600ml}

Water {1 cup}

"Included" Zipper-lock bag

Microwave for boiling

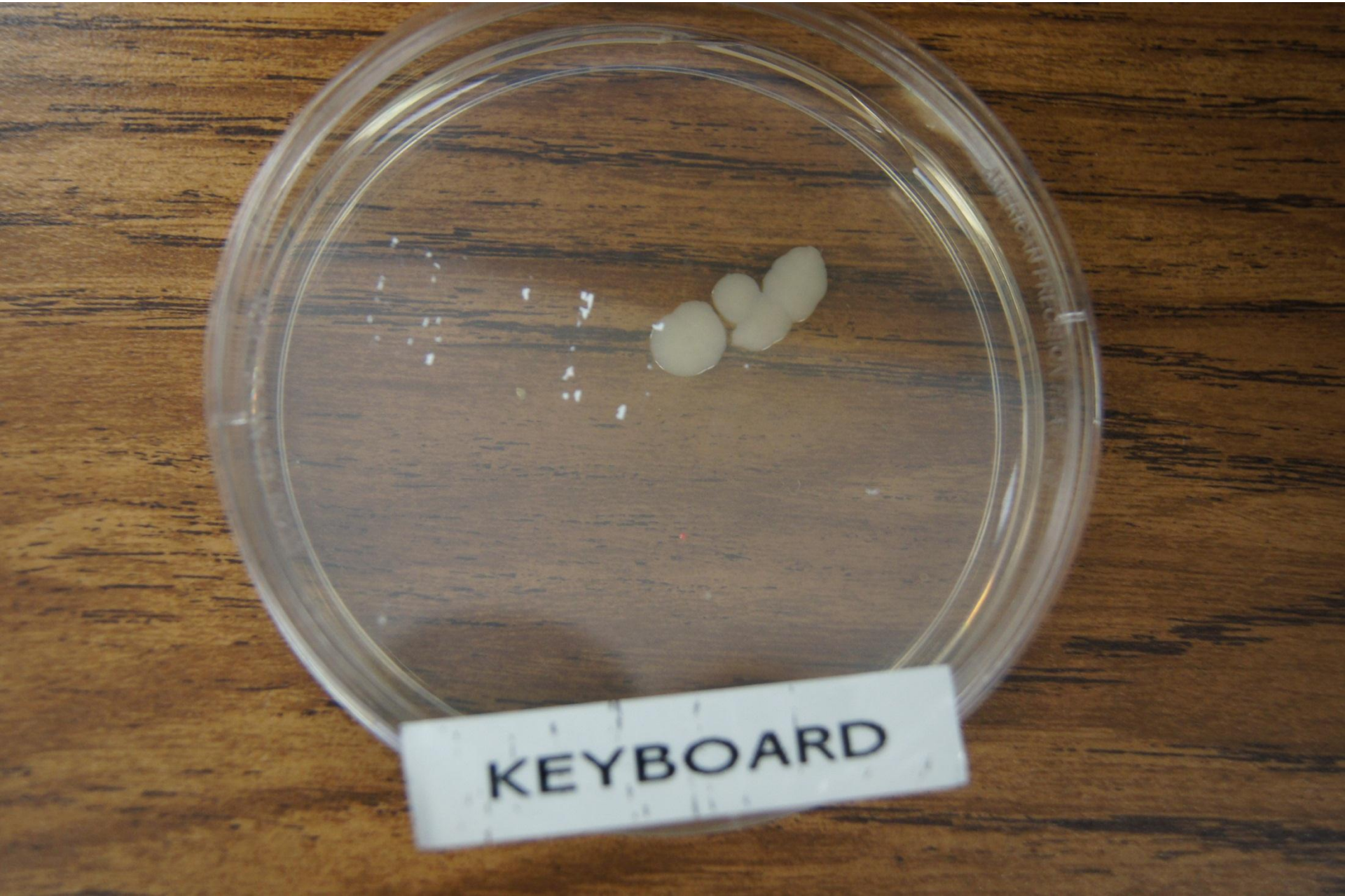


PHEOCS Designing experiment

1. Clean the petri dishes {Your Choice/ don’t have to unless they are touched and have your bacteria in it}
2. Find the bag of agar
3. Mix and heat agar with water{use included beaker}
    a. bag of agar and 1 cup of hot water
    b. bring mixture to boil for 1 minute
        A. dissolves agar
        B. mixture should be clear
    c. allow mixture to cool{3 to 5 minutes}
4. Put solution into petri dishes and fill half full
    a. let harden / if it hardens move to step 5
        A. if doesn't harden / pour back into beaker and microwave for 10 to 15 seconds
        B. pour back into beaker and wait till harden

5. Use clean cotton swab and swab area
    a. wetten cotton swab to get better sample
    b. wipe over whole surface
    c. LIGHTLY squiggle it on the petri dish without contaminating it
6. Close petri dish and put in dark safe place
    a. label each petri dish
7. Wait about a week
8. DO NOT OPEN PETRI DISH
9. USE BAG TO DISPOSE OF CONTENTS
10 YOU DON'T WANT EXPOSE YOURSELF TO THE BACTERIA

Day 14 Germ Samples



Day 14 Germ Samples

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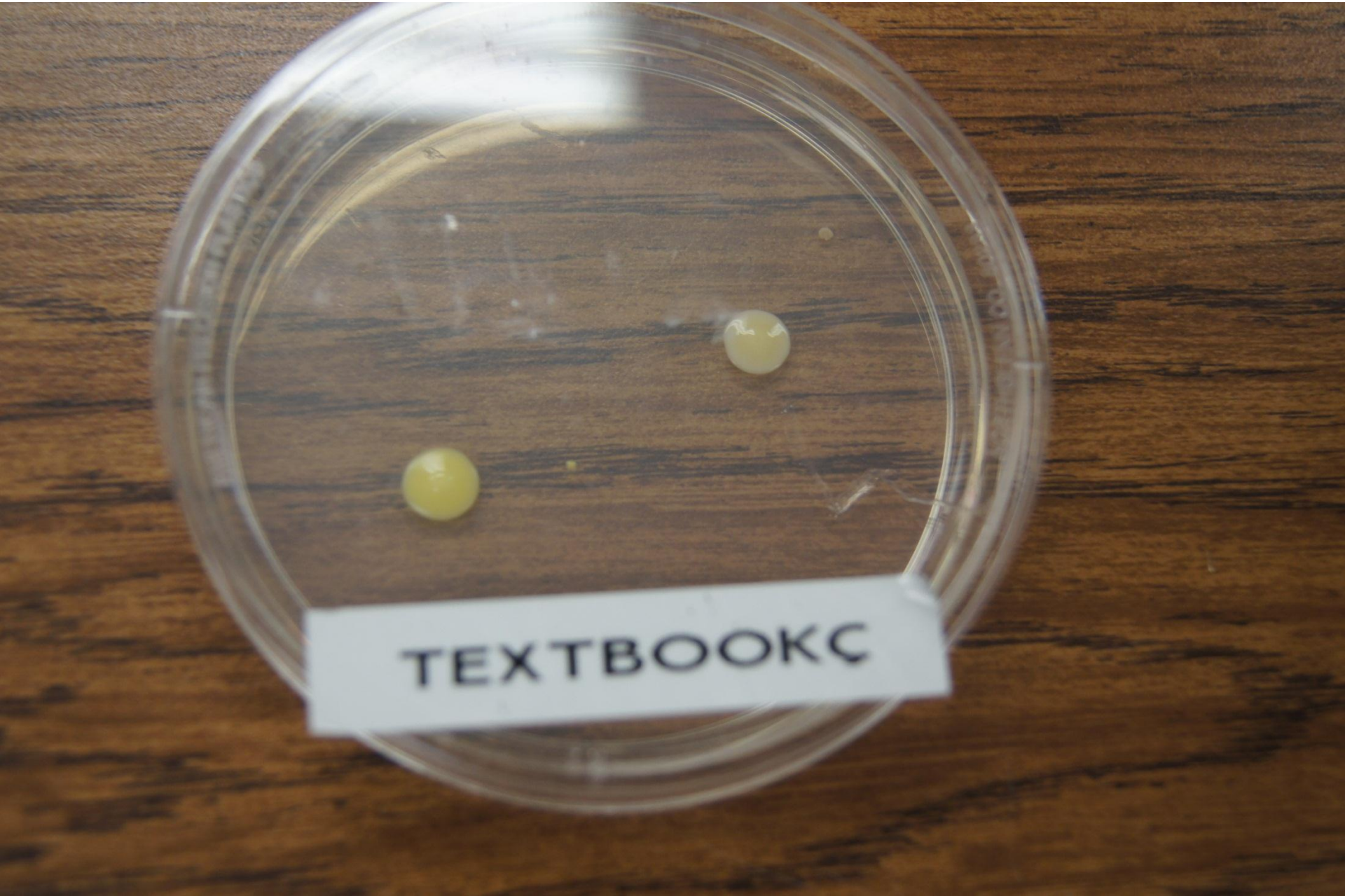

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Day 1 Swab Day

Data Table	Computer Based			Non-Computer Based		
Item testing:	Smart Board	Keyboard	iPad	White-board	Table	Text book
Picture of item testing						
Date and time	1/25/13 12:20	1/25/13 12:21	1/25/13 12:22	1/25/13 12:23	1/25/13 12:24	1/25/13 12:25
Descrip-tion	Nothing Start Day	Nothing Start Day	Nothing Start Day	Nothing Start Day	Nothing Start Day	Nothing Start Day
Picture						

PHEOCS Data Table

Day 3

Date and time	1/28/13 10:40	1/28/13 10:41	1/28/13 10:42	1/28/13 10:43	1/28/13 10:44	1/28/13 10:45
Description	Small spots of bacteria	Medium/ Small spots of bacteria	Very little bacteria/ condensation	Very little/ condensation	None	Very little
Picture						

Day 5

Date and time	1/31/13 9:50	1/31/13 9:51	1/31/13 9:52	1/31/13 9:53	1/31/13 9:54	1/31/13 9:55
Description	1 huge glob/4 tiny	4 medium globs	8 small globs	3 medium globs	Nothing	2 small globs
Picture						

PHEOCS Data Table

Day 6

Data Table	Computer Based			Non-Computer Based		
Item testing:	Smart Board	Keyboard	iPad	White-board	Table	Text book
Picture of item testing						
Date and time	2/1/13 10:10	2/1/13 10:11	2/1/13 10:12	2/1/13 10:13	2/1/13 10:14	2/1/13 10:15
Descrip-tion	1 large glob/3 small	2 medium globs	7 medium globs	4 medium globs 1 small	1 tiny glob	2 medium globs
Picture						

PHEOCS Data Table

Day 10						
Date and time	2/4/13 10:40	2/4/13 10:41	2/4/13 10:42	2/4/13 10:43	2/4/13 10:44	2/4/13 10:45
Descrip-tion	3 large/1 huge globs	4 large globs	7 large globs	4 large globs	1 small glob	2 large globs
Picture						
Day 14						
Date and time	2/6/13 10:15	2/6/13 10:16	2/6/13 10:17	2/6/13 10:18	2/6/13 10:19	2/6/13 10:20
Descrip-tion	2 large 2 huge globs	4 large globs	7 large globs	3 large 1 huge glob	1 tiny glob	2 large globs
Picture						

PHEOCS Data Table

Survey Page 1

Traditional School Student Results:	
Are there more germs in a traditional school or technology based school?	
A. Traditional School	11
B. Technology School	12
Are there more germs on a textbook or iPad?	
Textbook	11
iPad	12
How many germs do you think are on a smartboard?	
A lot	15
Some	7
Very little	1

Survey Page 2

Technology Based School Student Results:	
Are there more germs in a traditional school or technology based school?	
A. Traditional School	3
B. Technology School	20
Are there more germs on a textbook or iPad?	
Textbook	6
iPad	17
How many germs do you think are on a smartboard?	
A lot	18
Some	4
Very little	1

Top Ten Dirtiest Places at School

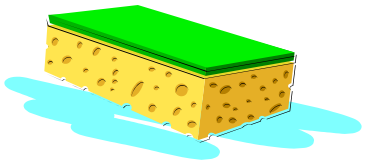
1. Water fountain (classroom)
2. Water fountain (cafeteria)
3. Cafeteria tray
4. Faucet (C)
5. Faucet (H)
6. Cafeteria plate
7. Keyboard
8. Toilet seat
9. Hand
10. Animal cage

Information Taken From: http://www.nsf.org/consumer/newsroom/pdf/fact_germs_top10_hot_spots_schools.pdf

Our conclusion is true based on our results. The results show us that in fact technology allows for more germs to grow and last longer than Traditional School Materials.

The traditional School had very little bacteria growth. The technology Based school had many more colonies and globs. If you were to look at the petri dishes you would understand our results. The first 5 days didn't show much, but after that the bacteria multiplied every day.

We need to clean the technology a lot more than we are. This goes for non technology too. The main thing you must do is keep technology and commonly touched surfaces clean.



We were delayed a day for day 5 of checking the germs due to a snow day.

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PHEOCS QR Code

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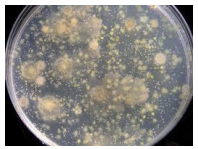

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Rest of the pictures were: Provided By Microsoft Clipart / Photos We Took

PHEOCS Cite resources