

Log Book

By: Molly and Leah

November 5th 2024

Today was the first science fair meeting where Mrs. Price told us about the science fair and what we are going to expect. She told us to go home and decide what we wanted to do for a project. This is what we decided to do:

Swab and test for germs

Swab 3 different surfaces in the kitchen for germs then see how many germs each surface has. Take lysol, water vinegar and meyers and spray one section of that suffice for each clean solution then swab it again.

We decided This for our question,

Question

Are environmentally friendly cleaners as effective in killing germs as chemical based cleaners are?

November 26th 2024

Today at our meeting Mrs. Price told us to start our Hypothesis and try to come up with a name. Me and Leah could not decide between Bye Bye Bacteria and Germs Be Gone. We took a vote and Bye Bye Bacteria won 8 nothing.

Name:

Bye Bye Bacteria

Hypothesis:

We think that vinegar water will kill the most germs because vinegar is acid and acids tend to kill a lot of organisms.

December 5 2024

Today Mrs. Price told us to start on our variables and background research. She added us to the science fair classroom for meeting notifications

Variables:

Our **Independent variable** is the type of cleaning solution.

Our **Dependent variable** is the amount of germs each solution kills.

Our **Controlled variables** are

- Amount of cleaning solution
- Place we store the germs and the way we swab the germs.
- Place where we are swabbing

Background Research :

Bacteria normally found in the kitchen

Salmonella

Shigella

Campylobacter

Norovirus

Salmonella

Salmonella is one type of bacteria found in food poisoning, like raw meats and eggs. It is dangerous to mostly infants and the elderly, otherwise most people can get over it themselves.

Shigella

Shigella bacteria is caused when you drink dirty and not filtered water or when you touch something really germey and touch your mouth. It is common to children under 5.

Campylobacter

Campylobacter is the type of bacteria that can cause food poisoning similar to salmonella but can be found in any contaminated foods. Symptoms start to appear in 2-5 days.

Norovirus

Norovirus is the most dangerous of foodborne illnesses and is highly contagious. It can come from contaminated food or water that has also touched a contaminated surface.

What does lysol kill

Kills germs/microorganisms including Salmonella choleraesuis, Staphylococcus and Shigella.

What does Meyers kill

Meyers is eco friendly and is good for getting dirt, grime and grease but is ok at disinfecting germs.

What is Agar

Agar, is a jelly-like substance obtained from the cell walls of some species of red algae.

LINKS

<https://www.mayoclinic.org>

<https://www.who.int/news-room>

<https://www3.epa.gov>

www.sciencedirect.com

learning-center.homesciencetools.com/article/bacteria

WINTER BREAK

After Christmas during winter break we worked on the procedure.

Procedure

First we will boil water then let it cool to room temperature in a pot, then we will put agar powder in the water and boil it while stirring frequently. When the agar has cooled we will pour it in the petri dishes and wait an hour for it to solidify. Then we will tape three sections of the sink, fridge handle and counter. We will also label the petri dishes. We will put on gloves and a mask to make sure we won't spread germs. We will wet those sections with a cotton ball and water then swab those sections with a swab and then move the swabs in a zigzag pattern while rotating the swabs in petri dishes full of agar. After that we will wipe down each smaller section with cotton balls drenched in Meyers, Lysol and Vinegar water, then wait ten minutes and then swab it again and move the swabs in a zigzag pattern while rotating on the agar again too. We will use different petri dishes for each swab. We will place the petri dishes in a dark room temperature place and wait for the bacteria to start to appear. Lastly, we will compare the difference each cleaning solution made between the first and second rounds of swabbing.

January 7 2025

We had a check in meeting to talk about where we are at in our projects.
We have got the materials that we need for our project:

- Petri dishes
- Agar
- Cotton swabs
- Masks
- Gloves
- Tape
- Lysol
- Meyers
- Vinegar water
- Cotton balls

January 26 2025

Today we did our experiment. We followed our procedure and started observing throughout 7 days.

Observations

Day 1: Nothing has appeared yet they look the same.

Day 2: Bigger, white dots are starting to appear on the dirty ones and C1 has a full zigzag tray of medium yellow dots

Day 3: White dots are appearing on the cleaned trays while the dirty ones dots are turning yellow and the sink ones have a whole bunch of small dots and C1 has stayed the same.

Day 4: Nothing has really changed. The counter and handle ones all have big yellow and white dots while the sink ones have a few big dots and a bunch of little ones. The cleaned sink ones have a few big dots but no little ones.

Day 5: Little dots are starting to appear on the handle ones and one of the counter ones. More bigger dots are starting to appear on the sink ones.

The vinegar water is doing really well, they are almost completely clean, especially the counter. Meyers did good on the handle and got rid of the smaller dots on the sink. It did ok on the counter. Lysol did well on the sink, getting rid of the little dots like meyers, but did ok on the handle and counter.

Day 6: The dirty ones' big dots are getting bigger while getting a bit more yellow. The sink still has a lot of little dots while the others dont. And the clean ones are the same, other than lysol that's doing better on the handle.

Day 7: The handle ones have a bit more dots but everything is mostly the same as day 5. Lysol has cleaned most of the germs of the petri dishes the same as vinegar water, except the handle is still a bit dirty. Meyers didn't do as well as the others but it still did well.

January 28th 2025

We had a check-in meeting for science fair to make sure our project is going well.

By the time our 7 days were up we looked at all the gems and came up with the conclusion that Lysol worked the best.

Conclusion

In conclusion, Lysol appeared to kill the most amount of germs. Therefore the most effective. Although, Vinegar Water was very close in results, killing many germs. Meyers was the least effective in cleaning germs. It took about three days for the first of the germs to appear, and about 7 days for the results to be clearly visible.

February 11 2025

We checked in with Mrs. Price and talked about our ethics and due care form.

February 18 2025

We went to Mrs. Price's room and she checked our work and told us what to improve on. She also told us to make a chart of some sort

February 20 2025

Mrs. Price told us that we are moving the school science fair to Thursday February 27 2025 to give us more time. She also said to bring the trifolds in as soon as we are finished.

February 25 2025

Today we brought the trifold to school and we finished our speech. We practiced it alot.