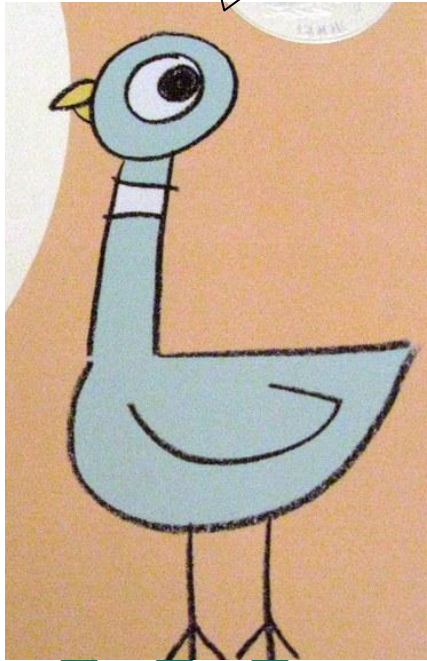
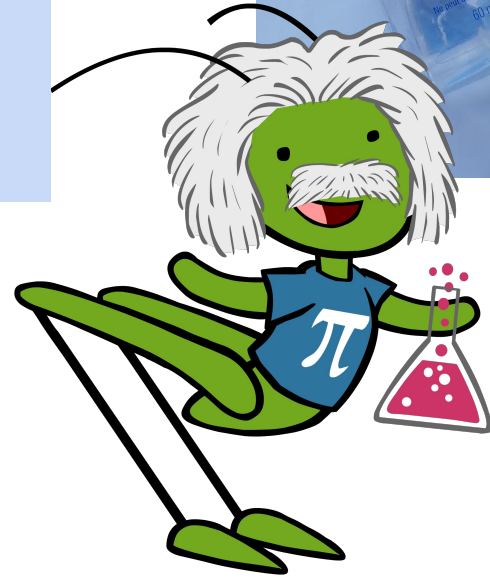


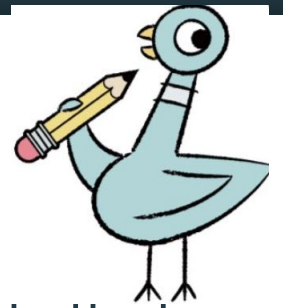
Look for me
Throughout
this slide!!



The Most Effective Hand Sanitizer Experiment

Anne U.,
Carolyn C.,
and Abby P.





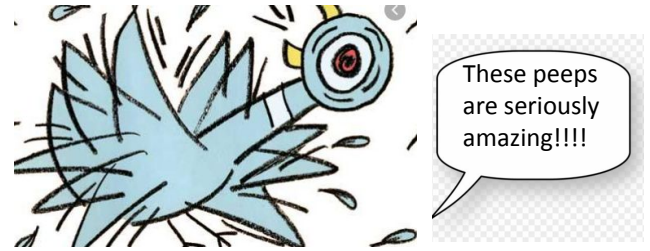
Question

We are testing to see which hand sanitizer brand is the most effective when it comes to killing germs and bacteria.

Hypothesis

Our Hypothesis is that the hand sanitizer with higher levels of alcohol will kill the most germs.

Ethanol



Hand sanitizer should have 60% alcohol. Most alcoholic hand sanitizers contain ethanol, or ethyl, for short. Its chemical formula is C_2H_5O . Ethanol is a flammable alcohol that is used in gasoline, in food extracts in which it enhances the flavor of, it is in some paints and cleaning products, and it is in many beauty products. It is also in hand sanitizer! Ethanol is effective in killing microorganisms, like bacteria, fungi, and viruses, including COVID-19.

Brands of hand sanitizer

Like we said before, an alcohol based hand sanitizer should be at the very least 60% ethanol to kill the germs and bacteria on your hands.

We are going to use 2 brands of hand sanitizer and plain alcohol:

Proudly made in CANADA

Drug Facts/Informations médicamenteuses

ACTIVE INGREDIENT: Ethyl alcohol 75% v/v (Technical Antiseptic). **USE:** To help reduce bacteria on the skin. **Flammable.** Keep away from open flame and sources of fire. **Do not use on broken or damaged skin.** **Other information:** Store below 110°F (43°C). May irritate eyes. **Directions:** Place enough product on your palm to cover your hands. Rub hands together briskly until dry. **Warnings:** Flammable. Keep away from fire or flame. For external use only. **Other information:** Store below 110°F (43°C). May irritate eyes. **Ingredients:** Water (Eau), Ethyl Alcohol (Alcool éthylique), Glycerin, Carbomer, Aminomethyl Propanol, Fragrance (Parfums), Tocopheryl Acetate (Vitamin E).

Manufactured by: Brands International Corp. Newmarket, ON L3Y 2S2, Canada

Drug Facts

- Kills 99.99% of most common germs that may make you sick.
- Refreshing, fruity fragrance.
- Use anytime, anywhere, without water or towels.
- Leaves hands feeling soft and smooth with Moisturizers and Vitamin E.
- Dermatologist tested.

Drug Facts

Active ingredient	Purpose
Ethyl Alcohol 62%	Antimicrobial

gojo

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Purell only has 62% Ethyl!!!

Drug Facts (continued)

Uses

- Hand sanitizer to help reduce bacteria on the skin that could cause disease.
- Recommended for repeated use.

Warnings

Flammable. Keep away from fire or flame. For external use only. When using this product do not use in or near the eyes. In case of contact, rinse eyes thoroughly with water. Stop use and ask a doctor if irritation or rash appears and lasts. Keep out of reach of children. If swallowed, get medical help or contact a Poison Control Center right away.

Directions

- Place enough product in your palm to thoroughly cover your hands.
- Rub hands together briskly until dry.
- Children under 6 years of age should be supervised when using this product.

Other information

- Store below 110°F (43°C).
- May discolor certain fabrics or surfaces.

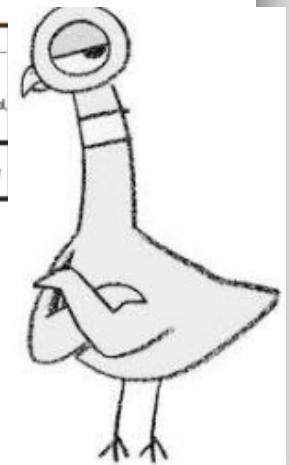
Drug Facts (continued)

Inactive ingredients

Water (Aqua), Isopropyl Alcohol, Glycerin, Isopropyl Myristate, Propylene Glycol, Tocopheryl Acetate, Aminomethyl Propanol, Carbomer, Fragrance (Parfum), Blue 1 (CI 42090).

Questions or comments?

Call 1-800-321-9647 Monday through Friday 8:00 AM to 5:00 PM.

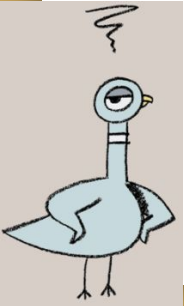


Experiment Design

MATERIALS: Bread, hand sanitizers: purell, germs be Gone, and an alcohol based hand sanitizer.

SETUP We got 4 pieces of bread and bags and labeled them; control, purell, germs be gone, and an alcohol based hand sanitizer.

PROCEDURE We will wipe are hands to get then germly on are computers and then use one of the types of sanitizer. Next we will wipe our hands on the bread, and then put it in a bag. We will repeat with the other sanitizers.



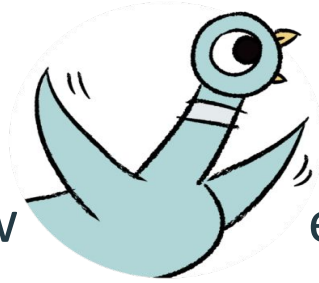


These are the hand sanitizers that we are going to test.



We wiped our hands on bread without hand sanitizer this is what looked like before

Results



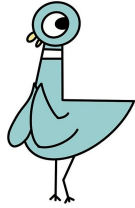
The mold did not grow even though the bread was left to mold for about 3 weeks.

Description

We did use bread that had preservatives in it, so we think that is the reason that the bread didn't mold. Or it might just not have had enough germs on it to mold.

Conclusions

We don't know if our hypothesis is correct because the bread didn't mold. We learned that if we want to make bread mold, we should use organic bread. However, we are going to try this experiment again with agar plates and hope that it works.

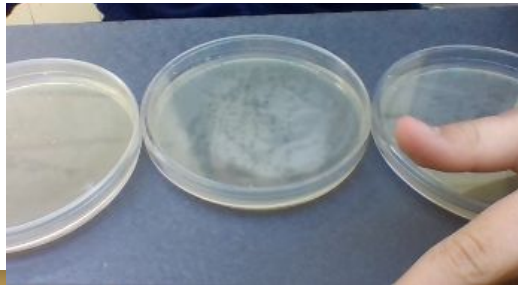


Experiment Number 2

Explanation

Since our last experiment didn't work, we are going to try the same experiment only with agar plates. We are going to use the same hand sanitizers. All of us are going to do use 3 agar plates, and each of us will use each of the sanitizer. There will also be one control agar plate.

Here are the agar plates that we are going to use.



Results-photographs-Abby

Before

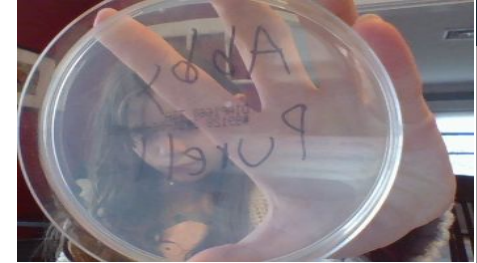


Alcohol based



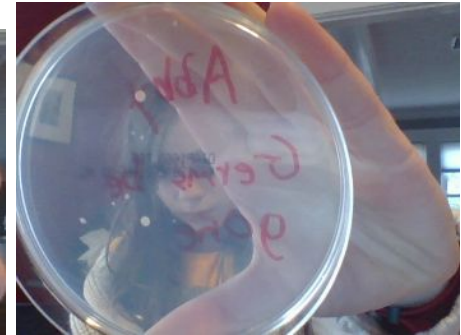
Control

After



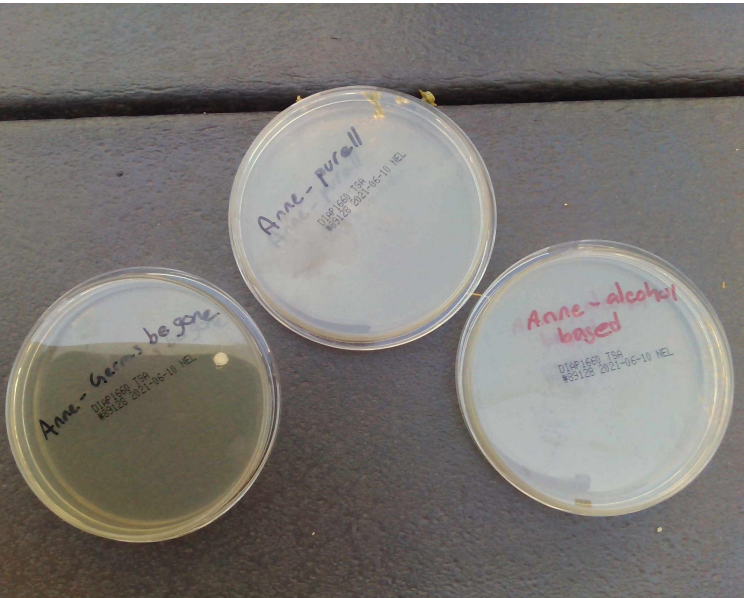
Purell

Germs be gone

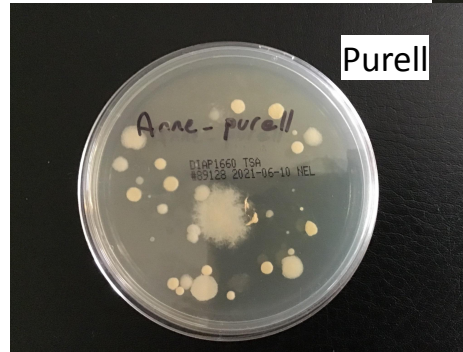


Results-photographs-Anne

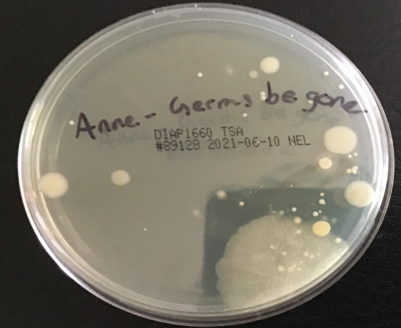
Before



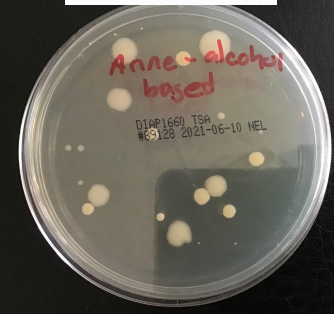
After



Germs be gone



Alcohol based



Results-Photographs-Carolyn

before



After



Results-Description

Abby

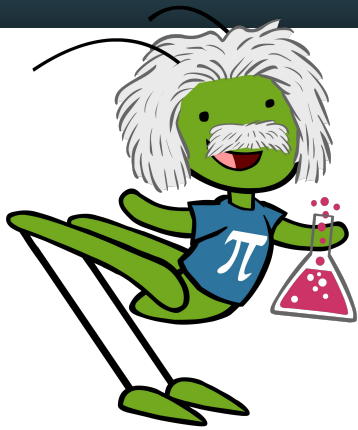
The control plate has about 7 big spots of bacteria and a lot of other little ones. The alcohol based plate has about 3 sort of big spots of bacteria and a few little spots. Next the purell plate has only 2 little spots of bacteria. Now last but not least germs be gone plate has 2 sort of big spots of bacteria and a few little spots.

Carolyn

The agar plate with the most mold was the one that we tested with Purell. The one with the second most mold was the agar plate that we tested with an alcohol based hand sanitizer. The agar plate with the least mold was the one that we tested with the hand sanitizer Germs be Gone. Therefore the hand sanitizer that was most effective was Germs be Gone.

Anne

In the end, the purell molded the most, with a lot of medium sized spots on it. The alcohol based had 11 spots on it, plus some other tiny ones, but the germs be gone had 7 spots on it, with the additional tiny ones, but it had one spot, that was really big.



Germs be gone,
Is the way to go!

Conclusion

In the end, we think it best to go with Germs Be Gone. Purell just isn't as effective, and the other alcohol based one is actually more like water, and less like hand sanitizer, and drips everywhere.

So after 2 experiments, 4 pieces of bread, 15 slides, 10 agar plates, and 3 hand sanitizer bottles, we have decided that germs be gone is is the most effective hand sanitizer, out of the small three that we tried.

Or, you could just simply wash your hands.